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TeleSonic proposes to develop and innovative multimedia automated telephone information system to increase preventative actions against breast cancer among minority and underserved female populations. The hypothesis is: through the successful development and implementation of an innovative multimedia automated telephone information system, it is possible to show that it can be used as an effective tool against breast cancer by reaching minority and underserved female populations, and by fostering them to take positive action. Anticipated results include: the successful development and operation of a breast cancer telephone information system; an increase in minority and underserved females seeking information; an increase in females who take proactive data measuring the efficacy of such a system among minority and underserved populations; and the enhancement of information infrastructure for use by physicians, patients, and concerned family members.

The target geographic regions will be selected to test the system. Region I, a control region, will target upper and mid-level socioeconomic households, while Region II will target minority and lower socioeconomic households.

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FOREWORD

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_____   _____
Principal Investigator's Signature   Date

7-26-95

ATTACHMENT 7

TABLE OF CONTENTS

Introduction

The information contained in the body and exhibits of this annual report reflect the activities conducted during the past year to test the research hypothesis.

The hypothesis is:

> "Through the successful development of an innovative multimedia automated telephone information system, it is possible to show that it can be used as an effective tool against breast cancer by reaching minority and underserved female populations, and by fostering them to take positive action."

The research effort has focused on the following areas:

- Refinement of the research design presented in the proposal.

- Design and development of the multimedia automated telephone information system

- Identification of the target populations for the research study

- Development of the direct mail campaign and mailer for the first demonstration test

- Development and implementation of a pretest demonstration model

Refinements in the research design and direct mail campaign were made with the assistance of an expert panel of project advisors. A series of focus groups with representatives of the target populations assisted in the development of the final postcard design used for the mailer.

The identification and selection of the target population's addresses required the innovative use of geographic information system (GIS) technology combined with census data and special mailing techniques. The approach developed could be of considerable value to other researchers, especially those doing mass communications research. This process was a valuable learning experience worthy of a separate research study.

The inclusion of a pretest has strengthened the research design. Preliminary analysis of the pretest mailing has partially confirmed the research hypothesis.

The viability of the telecommunications breast health information research project has been reaffirmed through the first year's efforts.

I. THE PROBLEM AND GOAL OF STUDY

A. Problem

Breast cancer is the most common cancer among women and the second leading cause of death among women. In the state of Maryland, where the major effort of the TeleCommunication Breast Health Information Research Project will take place, the incidence of breast cancer ranks the seventeenth worst in the nation (1995 Cancer Facts & Figures). Unfortunately, the overall statistics mask the real disparity of breast cancer incidence between white and African American females.

The prospects for survival for young white women diagnosed with breast cancer have improved during the past 20 years, while the prospects for African American women, especially older ones, are increasingly grim. Among postmenopausal African American women, the mortality rate from breast cancer has increased by 22 percent in the past 16 years (National Cancer Institute, 1994). The chart which follows depicts a clear and compelling picture of a trend that requires immediate intervention directed toward reversing this trend.

Figure 1. U.S. breast cancer incidence rates[1] by race, 1973-1986.
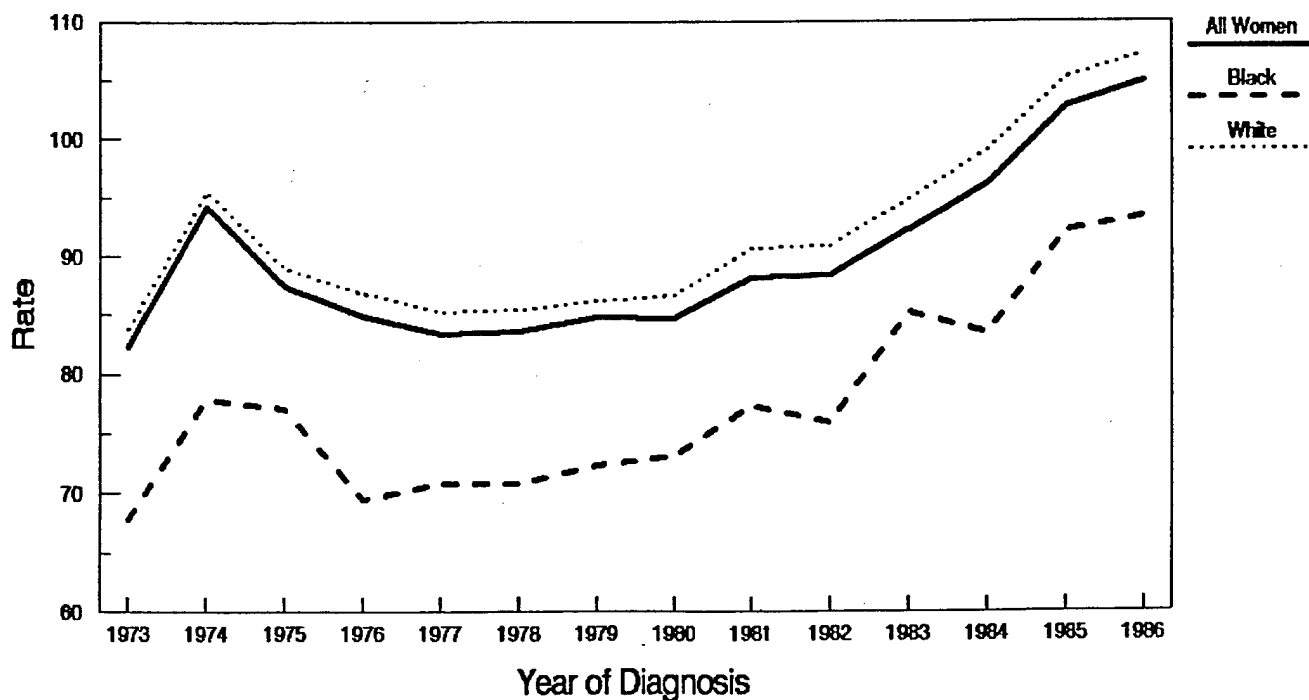
[1] Age-adjusted death rates per 100,000 women

Data Source: SEER

The disparity in health status among minority and underserved populations in general have been fully documented (REF 4,5 original proposal). A major barrier to adequate services for minorities can be attributed in part to the philosophical frameworks under which practitioners in the health professions are traditionally trained to operate. The behaviors of the majority mainstream populations are viewed as the archetype for the norm and, therefore, are perceived with higher regard. Traditionally the minority populations have been described in terms of a deficit model. This is evident in the terminology that has been used to describe minority people: subcultural, substandard, culturally deprived, and so on (Cole, L., 1993).

The challenge becomes, how to develop an appropriate and an effective information system which can be used as a tool in fostering greater numbers of minority and underserved females to proactively seek diagnostic and preventative breast cancer strategies. Given that many females do not access routine medical screening for breast cancer, and given that people with limited resources, special needs or disabilities do not or can not readily access available health education programs, there is a strong need to enhance infrastructure by developing effective information dissemination systems.

B. Goal

The intent of the Telecommunication Breast Health Information Research Project is to develop and conduct research related to the efficacy of using automated telecommunication systems in an attempt to reach minorities and underserved females with proactive information about breast cancer. Overall the research is designed to develop and evaluate a multi-media telephone system that would encourage minority and underserved females to seek preventative and diagnostic care for breast cancer. The research will compare the caller response patterns for an automated messaging system with live counselor response patterns. The basic hypothesis is that information-on-demand, through a non-threatening telecommunication information system can increase access to information and promote subsequent behavior changes.

The basic hypothesis is that through the successful development and implementation of an innovative multimedia automated telephone information system, it is possible to show that it can be effectively used as an effective tool against breast cancer by reaching minority and underserved female populations, and by fostering them to take positive action.

C. Anticipated Results

Anticipated results of the research study and development project include:

1. The successful design, development, and operation of a multimedia automated telephone information system which includes an on-line interactive caller quiz, an audio library of static and dynamic (changing) information messages, transfer ability to a live helpline assistant, caller message taking and feedback capability, and supplementary print material available immediately by fax, or within a few days by mail;

2. An increase in the number of minority and underserved females seeking breast cancer information;

3. An increase in the number of females who take proactive steps to sign up for mammography screening and/or make an appointment with a physician;

4. The collection of heretofore unavailable pertinent data measuring the efficacy of live telephone health information services versus automated telephone health information systems; and

5. The enhancement of the breast cancer information and communication infrastructure for use by physicians, patients, and concerned family members and friends.

D. First Year Research Focus

The first year research activities have directed attention toward four areas of focus:

1. Refinement of the research design
2. Design and development of the multimedia automated telephone information system
3. Identification of the target population to be included in the research activities
4. Development and implementation of a pretest demonstration model

These four areas support all but one of the nine major tasks established in the Statement of Work for this researach effort. A cross reference between the four areas of focus and the major tasks are noted on the chart on the following page which summarizes the year's activities.

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MAJOR PROJECT TASKS	FOCUS AREAS				TIMEFRAME											
	Refinement of the research design	Design & development of the multimedia phone info sys.	ID target population to be included in research activities	Development & implementation of pretest demo model	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
1. Determine content of information system		×			■	■	■	■	■							
2. Research system design issues		×			■	■	■	■	■							
3. Research issues/topics and produce messages identified for the information system's audiotex/faxiotex library		×						■	■	■	■	■	■			
4. Acquire and set up the demonstration system model		×								■	■	■	■			
5. Establish system and data retrieval routines	×	×								■	■	■	■			
6. Develop and implement the outreach and promotional campaign plans for the two target groups within each region		×	×	×								■	■	■	■	
7. Conduct two concurrent 24 month tests of the system				×				SECOND AND THIRD YEAR ACTIVITIES								
8. Research, define and identify appropriate future models of sustaining the information system beyond the test phase								SECOND AND THIRD YEAR ACTIVITIES								
9. Document & report results	×	×	×	×	■	■	■	■	■	■	■	■	■	■	■	

The research proposal and overall design proposed that the demonstration test begin the second year of the research effort and continue through the third year. This schedule is still maintained within the research design. It has been augmented, however, by the addition of a pretest of the telecommunication system. The pretest was not included in the original proposal but evolved from the refinements to the research protocol.

The discussion which follows reports on the four major activities conducted during this first year of research activities, starting with the refinement of the research protocol. Each section is presented by identifying and summarizing the major tasks from the proposal's Statement of Work.

II. REFINEMENT TO THE RESEARCH PLAN

Major tasks supported from the Statement of Work:

Task 5 - Establish system data retrieval routines, Months 4-15: a) Define evaluation criteria, b) Develop guidelines for maintenance and monitoring, c) Develop, produce, and disseminate promo materials, d) Enlist the assistance of professional and community networks, 3) Conduct outreach and promo efforts.

Tasks 9 - Document and report results: Months 1-35: a) Implement documentation procedures, b) Produce internal quarterly reports, c) Product annual and final reports, d) Provide ongoing program administrative support.

To accomplish the results anticipated three specific technical objectives were proposed for researching and developing an effective telecommunication information system . These objectives and any pertinent refinements to them are summarized below and explained in further detail within the discussion of this report:

Objective 1

Develop and evaluate a multimedia automated telephone system designed to encourage minority and underserved female populations to seek appropriate preventative and diagnostic care for breast cancer.

Refinements:

To adequately assess behavior changes the research design evolved to encompass three levels of behavior to be examined related to the callers to the automated telephone information system:

Behavior Level One--The number of calls to the systems.

Behavior Level Two--Any change in call pattern observed in callers to the systems

Behavior Level Three--The subsequent behaviors of callers to the system, after being exposed to the information systems

The three behavior levels were developed through deliberation and consultation with the project advisors and consultant. They are designed to provide a greater level of analysis and evaluation on the use of the information systems by callers.

Objective 2

Research and test automated telephone system designs and content that offer the best potential for results among the female minority and underserved populations.

Objective 3

Establish effective outreach systems for promoting the availability of the telephone system for use by a control group and an experimental group of perspective callers.

<u>Refinements:</u>

The evolution of the research design resulted in a research plan that focuses on comparative analyses across a number of variables (i.e. race and income levels for different geographical areas and with the examination of different outreach strategies. The details of these refinements to the research design are discussed in the research design which follows this section of the report.

Refinements to the research design evolved in the early stages of the research project, during the summer and fall of 1994, They were sparked by the synergistic effect of engaging a broad based representation of project advisors. These project advisors include representation from the local health department, health educators, cancer patients, cancer research and telecommunications experts, medical practitioners engaged in oncology and representatives of breast cancer support groups, among others. A listing of the project advisors and consultants is included as Exhibit A.

These refinements were aimed to meet two basic goals:

1. To clearly define the research design to support operational considerations, and

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2. To determine if refinement was needed to the research strategy that could improve the overall results.

The refinements enhance and clearly define the proposed research plan. Three components were added or modified as a result of deliberations:

1. The inclusion of a pretest as a precursor to the demonstration tests.

2. The inclusion of a process for input and recommendations from the target groups through the use of focus groups; and

3. Development of a series of comparative tests to look at the difference in caller preference for automated and live information systems across ethnicity, income and geographical areas. The test was expanded to include comparative analysis of the difference in response patterns based on a change in the outreach strategy.

All three components represent outcomes and needs that have evolved in the development and refinement of the existing research design. These will be discussed in further detail within this annual report.

III. RESEARCH PROTOCOL

Major tasks supported from the Statement of Work:

Task 2: Research technical system design issues, Months 1-5: a) Establish minimum technical parameters, b) Investigate add-on technology options, c) Determine available system options, d) Determine a technical configuration.

Task 6: Develop and implement the outreach and promotional campaign plans for the two target groups within each Region, Months 1-33: a) Define the target audience, b) Investigate impact of program name, c) Develop, produce, and disseminate promo materials, d) Enlist the assistance of professional and community networks, et) Conduct outreach and promo efforts.

Task 9: Document and report results: Months 1-35: a) Implement documentation procedures, b) Produce internal quarterly reports, c) Produce annual and final reports, d) provide ongoing program administrative support.

The TeleCommunication Breast Health Information Research project is designed to develop and evaluate a multi-media telephone system that would encourage minority and underserved females to seek preventative and diagnostic care for breast cancer. The basic hypothesis is that information-on-demand, through a non-threatening telecommunication information system can increase access to

information and promote subsequent behavior changes. We contend that through increased and informed levels of communication, greater subsequent action will occur. Obviously the need for successful outreach efforts is critical to making a difference in the lives of many women.

Our work is being approached with the assistance and support of a diverse panel of cancer experts. The roster of advisors assisting us with this effort is reflected in Exhibit A.

The research design will compare the patterns of usage for an automated message system and a live counselor system for the informationally-hard-to-reach. The hypothesis is that the automated system will increase calling levels in the targeted groups. The significance of this research cannot be understated, given the low level of proactive actions by minorities and low income women and the high breast cancer mortality rates for minorities. Information and communication strategies that will improve the proactive actions of these women are critically needed.

The specific research hypotheses which were developed for the project are noted in Exhibit B will serve as a basis for analyzing caller preference patterns.Three different tests will be conducted as a basis for analyzing response patterns. These will follow a pretest.

The original proposal addressed the comparative analysis that would be conducted during the test but did not define the strategy in detail. The details of the strategy helped to clearly define the target population as well as the test series. Both the test strategy and the target population are defined further within this section of the annual report.

The research plan will be conducted in four phases:

    1.   The technical and topical development of one to three demonstration models

    2.   The testing of the demonstration model

    3.   The evaluation of the demonstration model results, and

    4.   The preliminary examination of acceptable alternate funding approaches for continuation of the research beyond the test period.

The research protocol is presented in the population schemata included as Exhibit C. As indicated, three demonstration tests will be conducted. These three tests will involve four population groups. Caller preference analysis will be examined across and within these four target groups:

Population Group	Low/Moderate Income	Upper/Middle Income
African American Households	x	x
White Households	x	x

Prior to the first test a pretest will be conducted affecting 2,000 to 4,000 households across the four target groups. The pretest will be used to access the level of response anticipated. Based upon the results obtained the number of mailings to households in test one and test two will be determined to ensure response patterns that support statistical significance.

Test 1 --Designed to compare caller preference across racial groups and socio economic levels

Will include African American and white women from both low and mid-upper SES levels, stratified census areas.

Information will be mailed using a random assignment of treatment A or B within each census area.

This test will occur in the Baltimore Region, and

Will be conducted for a three month period September-November 1995.

This test will encompass direct mailings to 20,000-40,000 households, depending upon pre-test response patterns.

The four target groups below will be included in test one.

Target Group	Households
1. Middle to Upper Income African American Households	5,000 - 10,000
2. Middle to Upper Income White Households	5,000 - 10,000
3. Low to Moderate Income African American Households	5,000 - 10,000
4. Low to Moderate Income White Households	5,000 - 10,000

Test 2 --Designed to compare caller preference for low SES women across racial groups, using a mailing

> Will include African American and white women from low SES levels, stratified census areas.

> Information will be mailed using a random assignment of the treatment strategy.

> This test will occur in the Washington, D.C. Metropolitan Region, and will be conducted for a three month period April-June 1996.

Based on the results of test 1 and 2, a community based outreach strategy, other than the radio strategy planned for test 3, may be required. If so, then the census areas will be randomly assigned to the strategies to reduce strategy overlap as interaction occurs within the community. This would require more census areas to improve the consistency of analyses.

Target Group	Households
1. Low to Moderate Income African American Households	5,000 - 10,000
2. Low to Moderate Income White Households	5,000 - 10,000

Test 3-- Designed to compare caller preference for low SES women across racial groups, using a more direct outreach effort

> Will include African American and white women from low SES levels , using the same stratified census areas used in Tests 1 and 2.

> Information will be provided using targeted radio stations and allowance for the automated system to track caller preference for live or automated information.

> This test will occur in both the Baltimore, Maryland and the Washington, D.C. metropolitan regions, the same areas as for tests 1 and 2 ,and

> Will be conducted for a six-week to two-month period in the fall/ winter of 1996-1997

This test is necessary because the response treatment by radio (using only 1 telephone numbers) will support either treatment A or B, but not both. Hence, by running this test simultaneously in both regions, one region will use treatment A and one will use treatment B.

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This third test is dependent upon additional resources that are being sought from a supplemental request and from private funding to support the cost of radio air time. This third test will become critical if the results from test 1 and test 2 are at major variance.

The level of available resources could reduce the extent of testing. The technical parameters will also be a factor in determining the need for this test.

Target Group	Households
1. Low to Moderate Income African American Households- Balt. and D.C. Regions	5,000 - 10,000
2. Low to Moderate Income White Households Baltimore and D.C. Regions	5,000 - 10,000

A. Research Parameters

As a result of deliberations and worksessions held with the project advisors and consultants during the research refinement period July-December, 1994 the research parameters for the Telecommunication Breast Cancer Research project were concluded as follows:

* The research project will encompass an experimental design that will compare the caller preference of a automated multimedia telecommunication system and telephone information line supported by a live counselor.

* Targeted Census Regions: The research effort will involve households in census areas in the Baltimore, Maryland and Washington, D.C. metropolitan areas. It will encompass direct mailing to 20,000-40,000 households for each of the three demonstration tests, depending upon pretest response patterns.

* This test will target mailings to four distinct areas:

  1. middle to upper income African American households
  2. middle to upper income white households
  3. low income African American households
  4. low income white households.

* Three tests will be conducted using two treatment strategies for each identified test:

Treatment A - Individuals will receive printed material with live person referral

Treatment B - Individuals will receive printed material with instructions for using the multimedia automated telephone system with live referral option
(See Exhibit C: Population Schemata)

* Test Descriptions

Test 1--Designed to compare caller preference across racial groups and social economic levels, using a mailing.

Test 2--Designed to compare caller preference for low SES women across racial groups, using a mailing.

Test 3--Designed to compare caller preference for low SES women across racial groups, using a more direct-appeal outreach effort.

* Behaviors To Be Assessed

Three levels of behavior will be assessed during the research efforts:

Behavior Level 1 - Basic call levels for each system
Behavior Level 2 - Any change in call pattern by callers
Behavior Level 3 - Subsequent behavior of callers as a
                   result of information received

This last behavior level will compromise the anonymity that was presented in the original proposal, in that contact information will be collected requiring follow-up with callers to assess subsequent behaviors. Hence, the Principal Investigator has worked with the University of Maryland and the Department of the Army to obtain Human Subject Use review and approval. Approval was obtained from the Human Subject Review Committee at the University of Maryland, Baltimore. Approval is pending from the Department of the Army. This last behavior level will only be pursued if and after approval by the Department of the Army.

Additionally, within the context of this research and the related hypothesis minimum data collection requirements will evolve around eight data points:

	Automated System	Live Counselor
1. Number of callers from a particular census area	X	X
2. The number of repeat callers by census area	X	X
3. Number of topics accessed by a caller, general preferences, preferences by census area, preferences for calls taking the personal assessment	X	
4. Number of callers who transferred to a live counselor, by census area	X	X
5. Analysis of caller assessments with caller topical preference including live counselor transfers, by call census area	X	
6. Number of calls requested fax, hard copy by census area	X	
7. Number of callers by census area who responded to follow-up surveys	X	X
8. Tracking of repeat caller preferences in terms of topics and transfers to live counselor	X	

B. Research Definitions

* **Census Area Definitions:** All census areas will be drawn from 1990 census files, observing the following parameters:

    1. middle to upper income African American households

       Households classified as African American in the 1990 census with income ranges in the 3rd through 5th income quintiles (Income at $25,000 and higher)

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2. middle to upper income white households

   Households classified as white in the 1990 census with
   income ranges in the 3rd through 5th income quintiles
   (Income at $25,000 and higher)

3. low income African American households

   Households classified as African American in the 1990
   census with income ranges in the 1st and 2nd income
   quintiles (Income below $25,000)

4. low income white households.

   Households classified as white in the 1990 census with
   income ranges in the 1st and 2nd income quintiles
   (Income below $25,000)

* Target Population: Defined as the Informationally-Hard-To-
  Reach (IH-T-R); populations of females not currently being
  reached by traditional information dissemination and outreach
  methods including live health call taker telephone systems.
  Lower socioecomonic and minority groups are examples of
  presumptive IH-T-R and will represent the targeted population
  defined for this research effort.

IV. DESIGN AND DEVELOPMENT OF THE AUTOMATED TELEPHONE INFORMATION SYSTEM

Major tasks supported from Statement of Work:

Task 1: Determine content of information system, Months 1-5: a)
Establish advisory panel, b) Seek input from advisors, c)
Identify appropriate topics d) Seek expert input on topics, 3)
Develop final list of topics, f) Determine appropriate message
titles.

Task 2: Research technical system design issues, Months 1-5: a)
Establish minimum technical parameters, b) Investigate add-on
technology options, c) Determine available system options, d)
Determine a technical configuration.

Task 3: Research issues/topics and produce messages identified
for the information system's audiotex/faxiotex library, Month 4-
11: a) Identify and secure any additional required resources, b)
Conduct research, c) Write new scripts, d) Edit scripts, e) Use
advisors/consultants to review scripts, f) Identify voice
production talent, g) Produce scripts, h) Install/dub messages
onto system.

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Task 4: Acquire and set up the demonstration system model, Months 5-15: a) Obtain price data, b) Select best equipment options, c) Acquire the necessary equipment, d) Set up equipment for testing and loading, e) Install the technical configuration design f) Beta test the application in-house, g) Make final modifications to the technical design, h) Install system, i) Provide training.

Task 5: Establish system and data retrieval routines, Months 4-15: a) Define evaluation criteria, b) Develop guidelines for maintenance and monitoring, c) Identify dynamic information sources, d) Designate personnel responsible for tracking data.

Task 6: Develop and implement the outreach and promotional campaign plans for the two target groups within each Region, Months 1-33: a) Define the target audience, b) Investigate impact of program name, c) Develop, produce, and disseminate promo materials, d) Enlist the assistance of professional and community networks, e) Conduct outreach and promo efforts.

Task 9: Document and report results: Months 1-35: a) Implement documentation procedures, b) Produce internal quarterly reports, c) Produce annual and final reports, d) Provide ongoing program administrative support.

This component of the research effort represents those activities related to designing the system and the content for the callers use, with a primary focus on the automated telecommunication system. Three major tasks were implemented within this effort:

1. Determining the system's content
2. Determining the technical design to support the content, and
3. Obtaining input from representative of the target groups.

A. Content Development

The content for the system represents the topics and scripts to be included in an automated system. This effort was implemented with the active involvement of project staff, project advisors, and project consultants.

Initially, project staff engaged in research on topics. More than 70 topics were originally identified. Then after receiving input from advisors through rankings and discussions the topics were reduced. This information was the basis for a worksession with health educators and an oncology expert, at which time, the topics were finally reduced to 15. Scripts were developed for these topics.

Using research information and advise from advisors, scripts were written and edited by project staff. Each script was then grouped and read by at least three advisors. All scripts were read by the oncology expert, who has extensive experience as a practitioner in the oncology field. The input from these two external sources resulted in a re-editing of scripts by staff and a final worksesson with the oncology practitioner.

The results of these efforts over a 2 to 3 month period yielded a total of 15 messages within 5 categories as noted below:

1. What is breast cancer?
2. Put fear aside-Breast cancer is curable.
3. Breast cancer myths.
4. Every breast lump or pain is not cancer.
5. Breast cancer and African American Women
6. Men, you can get breast cancer too.
7. Are you at risk for getting breast cancer?
8. How to lower your risk for getting breast cancer
9. *Breast cancer examination
10. *All about mammograms
11. Where do I get more information about breast cancer?
12. How can breast cancer be treated?
13. There is a life after breast cancer.
14. *Community bulletin board
15. How should I support a friend or relative with breast cancer?
*Fax Information Available
(See Exhibit I)

The scripts that were developed for each topic were professionally produced for the information system.

B. Technical Design

The technical design relates to those activities associated with acquisition and installation of the hardware, software and telephone lines to support the telecommunication system. This effort also includes "loading" the system with the message content.

The telecommunication system operates on a personal computer platform, using Verbatim telecommunication software. Research was conducted to ensure a system that would provide the data to respond to the questions posed in the hypotheses and the eight data points referenced under the research parameters section of this report.

The equipment, software, and telephone lines were configured to support the basic call pattern for the system (Exhibit E and F). Exhibit E shows the flow of caller activity for the automated system. Exhibit F shows the flow of caller activity for those calling the live counselors at the Cancer Information Service and the American Cancer Society.

The call flows were developed to give callers options, yet to capture as much data as possible.

The chart which follows shows the timeliness for the major steps to prepare the content and set up the information systems:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1. Research and topic content	x	x							
2. Review and rank topics		x							
3. Develop research questions for data collection		x							
4. Research & write scripts	x	x	x	x					
5. Research hardware and software requirements		x	x						
6. Develop call flow design					x	x			
7. Professionally produce scripts						x			
8. Establish system for beta test						x			
9. Internal beta test and modifications						x	x		
10. External beta test and modifications							x	x	
11. System ready for pretest									x

C. Focus Groups

The inclusion of focus groups as a component of the research model evolved from the basic assessment of variations and differences in information interest across the targeted populations. Clearly, those persons who can provide the greatest insight and information regarding the type of effective outreach strategies that should be considered are the persons in the targeted groups. Hence, the research plan has been broaden to include focus groups at each stage of the research process. Although focus groups have been used during the first phase of this research effort, additional resources are necessary to implement this component for each test phase of this research and development process. Hence, additional resources have been requested to support the continuing inclusion of focus groups in the research design.

The focus groups have provided invaluable insight and information and helped to identify and clarify issues and concerns that should be considered in the design and operation of the information system and outreach efforts.

Two different focus groups were conducted during this first phase of the test. Exhibit H provides the report for the first series of four focus groups that were used to generate ideas, recommendations and reactions used in the development of the outreach strategy for the mail campaign. These groups were identified by organizations in the target census areas that have memberships representative of the test design. One focus group was identified for each of the four targeted population groups for the study. The only modification to this was that the focus groups for the white low to moderate income group became a mixed group of white and African American females.

Some of the key findings for the nine questions that were consistently asked of each group are noted in the following tables. The details for the summary tables and responses to others questions can be found in Exhibit H. In most cases the information summarized in the tables are based on the most frequently referenced response.

1. Why did you offer to participate in a discussion on breast cancer?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Personal concerns about breast cancer	x	x	x	na
2. Family history	x	x	x	na
3. Lifestyle concerns	x	x		na

The responses to this question were fairly consistent across each of the focus groups. Most frequently the members state a relative with breast cancer or their own concern about the disease. Lifestyle comments included statements like busy schedules and personal health matters. This question was not asked of the white Upper to middle income group.

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2. What is your attitude toward breast cancer?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Fear or "I'm scared"	x	x	x	x
2. Don't want to know	x	x	x	
3. Resentment toward the medical establishment for not supporting standards they promulgate				x
4. Believe in preventive measures or want to know more	x	x		x

The ranges of responses to this question was broader. Most frequently referenced across all groups was the issue of fear, confusion or feeling of being scared. Also included were comments describing actions that clearly showed an interest in taking preventive actions like getting a mammogram or self examinations or wanting to know more about the topic.

3. Why do you suppose breast cancer deaths have risen 18% in the last 20 years in African American women of all ages?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Lack of preventative measures	x	x	x	na
2. Other priorities		x	x	na
3. Requires extra cost, efforts or insurance	x	x	x	na
4. Fear		x	x	na

The responses summarized for this question were consistently similar related to the issue of requiring additional cost, effort or insurance. All three were mentioned by the low to moderate African American income group, with cost being the most frequently referenced problem for the low to moderate mixed race group. No response is provided from the upper to

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middle income white focus group. Their general response to this question was that it is possible that the death rate is higher because there is a better reporting system and voiced concerns about chemicals in the environment and the local incidence pattern.

4. Death related to cancer can be greatly reduced through eating right, not smoking, and finding cancer early. What would be the best thing to say to women to get them to do these things?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1.More advertisement	x			
2.Push benefits/hope with early treatment, promote good news	x	x	x	x
3.Use scare as a motivator			x	
4 Show empowerment through information		x		x

While a few women in the mixed low to moderate income group were motivated by scare tactics, consistently all women wanted to hear positive, information about possibilities and success stories and empowerment. One group even proposed the ideal about having a section in well known stores like Nordstrom that provide services for persons who have had their breasts removed. Only one group, the lower to moderate income African American group indicated the importance of enhanced advertisement similar to the ads on smoking, discussions from all groups inferred advertisement as being necessary.

5. Which is better to tell people about:

a. Facts about breast cancer deaths
b. Ways to help lessen the risk of breast cancer
c. Other?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Facts about breast cancer deaths	na	x		na
2. Ways to help lessen the risk of breast cancer	na	x	x	na
3. Other?				na

Because this question was not asked in all focus groups, the responses are mixed. Those persons in the upper to middle income African American group that suggested facts also spoke to the importance of presenting the information in a positive format and not heighten fear.

6. Which topics about breast cancer would you listen to? Respondents were asked to pick only one from the following list.

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Breast cancer and African American women	2	0	3	0
2. Do genetics and family history play a role in breast cancer?	2	3	1	0
3. Breast cancer, the pill and menopause	2	0	0	2
4. How to lower your risk of breast cancer	4	3	5	0
5. What is breast cancer?	0	0	1	0
6. Are you at risk of getting breast cancer?	0	0	1	1
7. Your lifestyle and how it effects breast cancer?	0	0	0	2
8. How can breast cancer be treated?	0	0	0	3

7. Are there any topics you might want to learn about cancer that you feel would get your attention if you heard about it through the media?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Prevention/detection/ treatment	x	x	x	
2. Research			x	x
3. Other	x	x	x	x

The range of responses to this question varied. The detail report shows the greatest concentration of responses related to the category of prevention, treatment or research or to the category defined as other. Marked differences exist within each category. It should be noted that one respondent from the low to moderate income African American group pointed out that she would not listen at all to information about breast cancer.

8. Have you received any information about breast cancer in the last several years? if yes, where? (Presented in yes/no responses) and from which source would you rather learn about breast cancer? (Represented in a numerical response)

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/ mod	White up/mid
1. Advertising	no/1	no/2	no/0	no/2
2. News media	yes/0	no/4	no/0	no/2
3. Your doctor	no/6	yes/3	no/2	no/4
4. Health organization	yes/0	yes/3	no/0	yes/0
5. Other	no/0	yes/0	yes/1	yes/0

The responses from the focus group participants cover two questions. A yes/no response is provided to the question about whether information has been received in the last several years. Relatedly, a numerical response is provided indicating the number of participants having a preference for how they should receive information on breast cancer.

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9. How would you design a mailer?

Response Type	African Amer. low/mod	African Amer. up/mid	Mixed low/mod	White up/mid
1. Appearance	bright colors, postcard	colorful, texture, oversized, personalized	personalized, message on envelope	Large print, post-card, easy reader
2. Focus of message content	"Don't just do it for you, do it for your children"	"Do you want to take a chance with your life?"	"It can happen to you--show positive"	
3. Miscellaneous considerations	incentive gift	coupon and notice of free gift	Reference sources of authority	Schedule of mammogram site

The summary comments group the responses around three areas. More details are presented in the Exhibit H.

Exhibit I contains the results from a second series of two focus groups that were identified to react to tentative mail designs and assist in offering information and input on the mail design that would bring the most effective response. The successful outcome of this effort is reflected in the high response patterns being observed in the tentative data analysis from pretest results.

This second series of focus groups represent two representative groups that were used to react to the proposed mail/outreach design after taking into consideration the input from the four earlier groups. These two representative groups included the members of the first low to moderate African American focus group, and a low to moderate white income group of women who were contacted for the first time to provide their reaction to the proposed mail designs.

Each group was given choices of four postcard designs to critique. Input from these two focus groups, health educator advisors to the project and project staff were reviewed and discussed and resulted in the final postcard design (See Exhibits J and K).

The folded postcard (Exhibit J) was mailed to all participants receiving Treatment A-- the automated telecommunication system. Subjects in Treatment B-- the live counselor telecommunication system received the double-sided postcard (Exhibit K)

V. IDENTIFICATION OF TARGET POPULATION

Major tasks supported from the Statement of Work :

Task 6 - Develop and implement the outreach and promotional campaign plans for the two target groups within each Region, Months 1-33: a) Define the target audience, b) Investigate impact of program name, c) Develop, produce, and disseminate promo materials, d) Enlist the assistance of professional and community networks, e) Conduct outreach and promo efforts.

Task 9 - Document and report results: Months 1-35: a) Implement documentation procedures, b) Produce internal quarterly reports, c) Produce annual and final reports, d) Provide ongoing program administrative support.

The target population is identified as the Informationally-hard-to-reach; that population of females not currently being reached by traditional information dissemination and outreach methods including live health call taker telephone systems. For purposes of this research effort the two populations groups of the informationally-hard-to-reach to be targeted include lower socioecomonic and minority women.

The research design calls for the identification of the target population from 1990 census files. Two basic parameters were observed in identifying the representative census areas, race and income. These parameters are defined under the previous section. In summary they were targeted for four census areas as follows:

Race	Income Range	Income Designation
African American Household	Less that $25,000	Low/Moderate
White Household	Less than $25,000	Low/Moderate
African American Household	$25,000 or more	Upper/Middle
White Household	$25,000 or more	Upper/Moderate

The target population will be identified across two geographical regions to support the three demonstration tests and the pretest. The numbers of households targeted for each region by test are noted as follows:

Test	Region	No. of Households for each Census Area
Pretest	Balt. Metro. Region	2,000 - 4,000
Test 1	Balt. Metro. Region	20,000 - 40,000
Test 2	Wash., D.C. Metro. Region	10,000 - 20,000
Test 3	Balt. and Wash., D.C. Metro. Regions	20,000 - 40,000

Overall 52,000 to 104,000 households, equally distributed across the four census groups will be targeted for the three test efforts. The low of 52,000 represents the number of selected households to be targeted if the pretest results provide the anticipated response pattern of 10% for the automated system and 7.5% for the live counselor system. These response levels are necessary to test for statistical significance. If the response pattern is less than the anticipated percentage levels, the higher sample of households will be necessary. It should be noted that if the higher level is necessary, the increased cost associated with a doubling of the outreach effort will require that additional resources be sought to support the designed tests or will require a modification in the test design.

During the first year research effort census data was manipulated for the Baltimore region to be used for the pretest and the first full demonstration test. The census manipulation process for test 2 will occur during the second year and will focus on the Washington, D.C. Metropolitan region.

The demographic information for the pretest and for the test 1 demonstration was generated from a combination of the 1990 census files and the TIGER files, which are U.S. geographic service files designed to show roads, political boundaries and related identifying parameters. This information was used to select census block groups for each of the four target populations. After which the census block groups were geo-coded and then applied against address files, from which the sample households needed for each of the target populations were generated. See Exhibit D for a detailed description of the process and analysis used in manipulating the census files.

In order to validate the identification and selection process for identifying the target populations, the census data (Exhibit D) was submitted to the Baltimore Metropolitan Council for review. The Council supports the approach in selecting the census block groups. (See Exhibit E)

A number of cautions and findings should be noted about the use of the census information as a demographic tools in conducting this research:

1.   Census information could not be used to identify the households of females at targeted age levels or education levels.

Although this was desired and originally attempted, it was found that targeting census information based upon these factors as well as income and race had a narrowing effect, creating a very limited population count. Hence information on age and gender were identified as a description of the profile of a census tract rather than a descriptor of the individual households.

2.   Census results originally anticipated the identification of enough households to generate a minimum of three to one selection.

For the pretest and the first demonstration test, the census manipulation began with the total of 867,656 households in central Maryland. This includes the City of Baltimore and five counties. It was assumed that this original total was large enough to generate the minimum 3 to 1 range and to ensure the inclusion of a majority of representation by race and income (originally targeted at 60% or better for each variable). In the final analysis, only four counties: Baltimore, Anne Arundel, Harford and Howard along with the City of Baltimore met the dual representation criteria.

In addition, it was necessary to reduce the race and income representation levels for eligible census areas from 60% down to 55%. In fact at the 55% concentration levels a summary of the number of households with more than 500 or more households for the four targeted populations shows the dispersion of certain population groups. As a consequence two points are evident: (1) concentration level for race and income had to be reduced and (2) the anticipated minimum of 3 to 1 mailing ratio could not be met. In fact a 2.8 to 1 ratio was necessary for white low to moderate income, because the concentration levels could not be found. This will require close scrutiny in the outreach strategy to reduce seepage. Again the details of this analysis can be found in Exhibit D. The breakdown by census areas that will be used for the pretest and test 1 for the four target populations is reflected as follows:

Census Area	L/M AA	U/M AA	L/M W	U/M W
Baltimore County	x	x	x	x
Anne Arundel Cty	-	-*	-	x
Baltimore County	-	x	x	x
Howard County	-	-	-	x
Harford County	-	-	x*	x

3.   To identify the income levels for the census areas required that files be manipulated in terms of household rather than poverty level, which was originally anticipated.

There is no cross link between the census files for households by race and the poverty level of households. As a consequence, plans to define the racial groups by poverty levels were abandoned. Instead, income levels for household were used. Based on 1989 incomes levels from the Census Bureau, income levels were broken into two levels: the 1st and 2nd quintile income levels, defined as low to moderate income and the 3rd through 5th quintile income levels defined as upper to middle income. Since the 1990 census files classifies household as a break point of $25,000. This amount was used as the upper limit for the low to moderate income groups. Amounts equal to or greater than $25,000 were used to represent middle to upper income groups.

Exhibit D describes the census manipulation process and the final details. The information from this process was used by a mail house to cross reference the census tracts with geo-file (street files) and then address files were used to identify the household residents and addresses for each of the four census areas.

Early in the census manipulation process it was hoped that mailers could be addressed personally to each female in the household. The difficulties encountered in this cross reference process resulted in abandoning this plan. Instead, resident's names for household addresses were programmed to read to "the Brown Family" rather then to "Mr. or Mrs Brown". It was concluded that the former address to the household would be better than the latter, since females are the primary target audience.

The results of the pretest and all earlier tests will be used to provide valuable information for refinements to the accuracy of the address finding process. The accuracy of the effort on the pretest will be discussed within the pretest section of this report.

VI. DEVELOPMENT AND IMPLEMENTATION OF PRETEST MODEL

Major tasks supported from the Statement of Work:

Task 7: Conduct two concurrent 24 month tests of the system: Month 13-34: a) Identify specific outcome questions to be identified, b) Determine appropriate measuring tools c) Conduct demonstrations, d) Evaluate demos, 3) Implement appropriate modifications, f) Assess most effective approaches.

Task 9: Document and report results: Months 1-35: a) Implement documentation procedures, b) Produce internal quarterly reports, c) Produce annual and final reports, d) Provide ongoing program administrative support.

As noted earlier, the original proposal for the Telecommunication Breast Health Information Research Project calls for a comparative analyses of caller response patterns. Callers will be assessed regarding their preferences for accessing automated and live counselor information systems. The original proposal scheduled the test demonstration period to begin during the second year of the research effort. These plans are still on schedule. Three comparative demonstration tests are being scheduled for the second and third years of the research effort. However, due to refinement to the research design, a pretest has also been added to the design model. This section of the report highlights the pretest efforts and provides tentative results.

The pretest effort was added to examine the response patterns of the callers, using a small sampling from the targeted households. The pretest results will provide information that will help to determine the number of mailings for test 1 and 2, which will be based on a randomized mailing outreach strategy. If the response pattern for the pretest is in at the anticipated levels then scheduled minimum mailing levels will be used. If the response pattern from the pretest is below the anticipated levels the maximum mailing level will be used.

In addition, the pretest is designed to obtain any information regarding the subject's reactions to the content and the overall system. This information will also be used to make adjustments to the system before the first demonstration test.

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A. Pretest Preparation

Exhibit L presents the response patterns anticipated for the automated and live counselor information systems, respectively. These estimates are based on response patterns for other telecommunication applications. In general, the estimated calls to the live counselor system is projected at 5% for the first month and 7.5% for a three month period. As it relates to the automated information system, a higher response pattern is projected, 7% for the first month and 10% for a three month period.

Based on these response patterns sampling size calculations were developed for varying response rates. Exhibit M shows the sampling size rates for significance levels ranging from 1% to 20%, although p-values or statistical significance indicators at 0.05 or 5% is the targeted assessment point for this study effort.The varying response patterns were used to identify the sampling sizes and likewise were used to determine the range of the targeted mailings that were discussed earlier within this section of the report.

Two pretests were set up to run from the middle of June through the middle of August, 1995, with the first demonstration test scheduled for mid September. The first demonstration test would include 20,000 or 40,000 mailings to households in the metropolitan Baltimore region, dependent upon the response pattern of the pretest.

The pretest plan called for implementation in two stages. Stage one would represent a mailing to 2,000 households equally distributed across the four census areas. After examining the results from stage one, a second pretest mailing would occur, a different mailing to 2,000 households. The combined results of these mailings would be the determining factor in changes to be made for the September test.

The pretest mailing for stage one took place as scheduled, on June 14th; data collection began on June 15th. Based on preliminary analysis of 3 weeks of data, a decision was made for a second stage pretest mailing. This mailing took place on July 20th; data collection and analysis for this stage will begin on July 21 and will continue through the third week in August.

While the automated system was under development, consideration was given to placing pre and post test information in the automated system, this was accomplished through a voluntary series of profile questions that was used to direct the caller toward certain messages. Summary responses to the profiles will be cross referenced to the feedback questions that are also built into the system. In addition, the following operational questions were addressed during the development phase and helped to guide the development of the pretest and plans for the subsequent tests and data analysis:

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a. How many direct mailings will go to each target area?

b. Should the target areas change for validity of results?

c. How many follow-up survey responses are necessary for statistically significant results?

d. How large should the mailings be for each region?

e. How will attempt be implemented to standardize who within the household completes the survey?

f. What psychosocial theory will be brought to bear to justify the follow-up survey?

g. Is scientific validity of the message content needed?

h. Direct mail promotional materials to the targeted populations should be carefully researched as to accuracy, design, and cultural sensitivity.

i. Principal areas of concern for this proposal include- (1) epidemiology (2) telecommunications technology (3) statistics (4) data analysis, and (5) cultural awareness.

j. Will the research effort answer the question as to whether the project was more effective in reaching minorities in the area of targeted information?

B. TENTATIVE PRETEST RESULTS

Only three weeks of pretest data was available for analysis by the preparation of this report. Hence the presented analysis is tentative in nature but provides some very clear indices for the research. These tentative reports are not presented in relation to the hypothesis (See Exhibit B: Research Hypothesis) because the period of data analysis is insufficient. However, there are general evaluation questions that provide some early indices that can be reported. Tables 1 and 2 provide basic response patterns based on the mailings to the 2,000 households in the first pretest stage for the first three weeks.

It should be noted that of the 2,000 post cards mailed during the first stage mailing for the pretest, only 31 were returned. The postcards were mailed, using an address correction, postage guaranteed label to increase the probability of receiving undelivered postcards. This step was taken as an additional cross check to verify the accuracy of the census efforts. These returns are not significant. However, the returns by census areas are noted as follows:

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	Returned Postcards
African American low to moderate income	7
African American upper to middle income	1
White low to moderate income	15
White upper to middle income	8

Table 1 shows that the response pattern exceeds the projected rates as previously noted.

Table 1
Preliminary Response for First Three Weeks

Exposure	Mailings	Calls	Response	Projected Response
Automated	1,000	227	23%	10%
Live	1,000	118	12%	7.5%
Totals	2,000	345	17%	

Table 2
First pretest Mailing by Census Group and Exposure

Census Group	Automated	Live	Total
African-American			
Low-Moderate	250	250	500
Upper-Middle	250	250	500
White			
Low-Moderate	250	250	500
Upper-Middle	250	250	500
Totals	1,000	1,000	2,000

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Only three questions can be addressed partially by the tentative pretest data. Because only limited data is available at this three week point in an eight week pretest, the complete and detailed analysis against the hypothesis and research questions will be addressed and reported based on the data from the full pretest.

1. Does the use of telecommunication increase the number of females seeking information about breast cancer? Does the rate of increase vary by race or social-economic status (SES)?

Tentative Pretest Results:

The data for the three week period is not sufficient to answer the first part of this question. The data for three weeks, however is clear for a p-value of 0.05:

Table 3
Response and Exposure by Race Characteristic

Race	Mailings	Calls	Response	x^2	p-value
African American	1,000	141	14%	13.9	0.000
White	1,000	204	20%	13.9	0.000
Total	2,000	345			

The preliminary response across racial groups is significant.

Table 4
Response and Exposure by Income Characteristic

Income	Mailings	Calls	Response	x^2	p-value
Low-Moderate	1,000	191	19%	1.26	0.261
Upper-Middle	1,000	154	15%	1.26	0.261
Total	2,000	345			

The preliminary response across income groups is not significant.

2. Is there a preference for live versus automated telephone information about breast cancer for females? If there is a preference, what is (are) the basis for the preferences? Does preference vary by SES levels or race?

<u>Tentative Pretest Results:</u>

The preliminary results are not sufficient to answer in this evaluation question. Hence, analysis of this question will have to be completed when all data is available. However, the preliminary data in Table 1 indicate a very clear preference for the automated system. Since the data only represents a small component of the test period, detailed analysis by race and income and significance levels will be reported based on the full test period:

3. Does increased access to information about breast cancer result in increased proactive actions such as screening and physician appointments? Do the subsequent actions vary based on race or SES?

<u>Tentative Pretest Results:</u>

Subsequent behaviors will be assessed as behavior level 3. This will occur through telephone and mail follow-up surveys two months after the caller's experience. Since the pretest is still underway, this question cannot be answered at this point in the test period.

VII CONCLUSIONS

The viability of this telecommunication breast health information research project has been reaffirmed through the first year's efforts. The advisors, have provided extensive levels of professional support for the project direction and focus, including help in refining the research design and information system content.

Refinements to the research design have helped shape the project to examine comparative information across regions, racial groups and income levels. In addition, the refinements will allow examination and comparison of different outreach strategies across the same variables.

The insight provided from the focus groups became an addition to the project that was not included in the details of the research proposal but was added as a result of deliberations with project staff, advisors and consultants. The information from these representative participants of the target population have provided invaluable insight. Not only have clear commonalities of perspective and beliefs surfaced but differences and similarities across racial groups were also uncovered. These can be reviewed in detail by examining Exhibits H and I, and summary information can be found in Section IV of this report.

Significant information has also been gleaned from the demographic analysis that was conducted through the use of census files and Geographic Information System (GIS) files. The difficulties and false starts encountered with this effort point to

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the need for written manuals that can be developed to assist researchers in using census files and GIS for primary demographic research, in the new and innovative methods developed for this project. The verification of the appropriateness of the process used and the accuracy resulting from the preliminary pretest results puts this company in the right position to develop such a manual system. Further assessments of this effort are underway.

While the information from the pretest presents only a temporary picture at this point, there are clear indices that are helpful in assessing and shaping the final design for the fall 1995 test. Based on three week of pretest data analysis the following three conclusions have evolved:

1. The anticipated response level can easily be met by proceeding with mailing at the minimum rather than the maximum level. Instead of obtaining a 7.5% and 10% response level for the live counselor and automated information systems, respectively, the pretest results are already showing 12% and 23% response levels.

2. The response patterns for callers also show a tendency toward higher call patterns to the automated system (See Table 1 under Tentative Pretest Section).

3. The low return of post card from the pretest along with the verification of the process by the chief demographer from the Baltimore Metropolitan Council attest to the appropriateness of the census process used to create the demographic information in identifying the target population and the mailings.

The complete analysis based on the entire pretest period will confirm or refine these preliminary results. The full analysis will also provide the detailed assessment of the specific research questions.

This preliminary information provides clear and objective evidence of the validity of the telecommunication breast health information research project. The information gained by the end of the project should prove invaluable in improving success in providing information to the informationally-hard-to-reach and in increasing proactive steps that are taken related to early detection of breast cancer.

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EXHIBITS

EXHIBITS

Exhibit A: Advisor Roster

Exhibit B: Research Hypothesis

Exhibit C: Population Schemata

Exhibit D: Census Data

Exhibit E: Baltimore Metropolitan Council Letter

Exhibit F: Automated Call Flow

Exhibit G: Live Call Flow

Exhibit H: First Focus Group Series

Exhibit I: Second Focus Group Series

Exhibit J: Automated Postcard

Exhibit K: Live Postcard

Exhibit L: Expected Response Rates

Exhibit M: Sample Size Determination

EXHIBIT A: ADVISOR ROSTER

BREAST CANCER INFORMATION OUTREACH RESEARCH
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Revised 6/8/95

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EXHIBIT B: RESEARCH HYPOTHESIS

TELECOMMUNICATION BREAST CANCER RESEARCH

HYPOTHESIS FOR SERIES OF TESTS

<u>Major Hypothesis</u>:
Multimedia automated telephone systems enhances live referral alone as a vehicle to reach the informationally hard-to-reach

<u>Related Hypotheses</u>:

1. Callers overall will show a greater tendency to call a multimedia automated telephone system combined with live referral than calls to the live referral alone.(Analyses of results from all tests)

2. Holding ethnicity and outreach method constant, callers at different SES levels will show significant differences in caller preferences for use of a multimedia automated telephone system with live referral option compared to live referral compared to . (Analyses of Test 1,2 and 3).

3. Holding ethnicity and outreach method constant, callers at lower SES levels will show a significant preference for the use of a multimedia automated telephone system with live referral option compared to live referral alone. (Analyses of Test 1, 2 and 3 for lower SES Regions).

4. Repeat callers will show a greater tendency to switch from a multimedia automated system to the live referral option. (Analyses of results from all tests)

5. Holding SES levels and outreach strategies constant, callers with higher SES levels across racial groups will show significant differences in their preference for the use of a multimedia automated telephone system with live referral option compared to live referral alone. (Comparison of Test 1, Regions 1 and 3)

6. Holding SES levels and outreach strategies constant, callers with lower SES across racial groups will show a preference for the use of a multimedia automated telephone system and live referral option compared to live referral alone. (Comparison of Test 1 and Test 2, lower SES Regions)

7. Holding ethnicity, region, SES levels and content constant, a culturally sensitive outreach strategy will increase caller volume compared to a less-culturally focused outreach strategy.(Comparison of Test 3 with Tests 1 and 2)

8. Holding ethnicity and SES levels constant, callers in different geographical areas will show a significant preference for a multimedia automated telephone system with live referral compared to live referral alone. (Comparison of test 1 with Test 2)

Note: For this research study the following terms are being used:

Informationally hard-to-reach--those persons who currently do not access existing cancer information telephone systems. Included in such a designation would be minorities, lower socioeconomic status representatives and other medically underserved populations.

Lower SES (Socio Economic Status)--targeted females in households with incomes at or below 1 and 2 income quintiles, education attainment examined for head of the household having attained a high school diploma or having no high school completion.

Upper and middle SES-- targeted females in households with incomes at or above the 3 income quintile level, education attainment examined for head of the household having attained a high school diploma and some college credits.

EXHIBIT C: POPULATION SCHEMATA

TeleCommunication Breast Cancer Research Design

POPULATION SCHEMATA

Test 1
(Baltimore Region)

REGION 1
African American
(Upper and Miid SES)

- **A** — Printed Materials Live Person Referral
- **B** — Printed Materials with Telephone Instructions and Live Referral

REGION 2
African American
(Low SES)

- **A** — Printed Materials Live Person Referral
- **B** — Printed Materials with Telephone Instructions and Live Referral

REGION 3
White
(Upper and Miid SES)

- **A** — Printed Materials Live Person Referral
- **B** — Printed Materials with Telephone Instructions and Live Referral

REGION 4
White
(Low SES)

- **A** — Printed Materials Live Person Referral
- **B** — Printed Materials with Telephone Instructions and Live Referral

Test 2
(Different Location)

REGION 1
White
(Low SES)

- **A** — Printed Materials Live Person Referral
- **B** — Printed Materials with Telephone Instructions and Live Referral

REGION 2
African American
(Low SES)

- **A** — Printed Materials Live Person Referral
- **B** — Printed Materials with Telephone Instructions and Live Referral

Test 3

White
(Low SES)
(Both test groups from Balt. and Wash. D.C. Regions)

- **A** — Radio Outreach for Live Person Referral
- **B** — Radio Outreach with Instructions for Automated System and Live Referral

African American
(Low SES)
(Both test groups from Balt. and Wash. D.C. Regions)

- **A** — Radio Outreach for Live Person Referral
- **B** — Radio Outreach with Instructions for Automated System and Live Referral

3/13/95

*Updated to reflect test plan finalized in Dec. 1994

EXHIBIT D: CENSUS DATA

Breast Health Information Program
Census Data

Table of Contents

Section 1 : Overview of Sample Group Selection Strategy

The informationally hard to reach have classically been the problem area for information dissemination research. In the distribution of informational material, the effort is designed to educate the recipients of the literature on the topic being discussed. The problem is that most of the people who receive or respond to the material either already know about the topic or the topic is not relevant to them. Thus, the attempt to educate the uneducated has failed.

So how does some one reach the informationally hard to reach. This population is particularly difficult because of its inherent nature: It's hard to reach. First, no one has agreed upon a common or general definition of this population. Second, once a target population has been defined, how do you get them to read the information you send them. This section reflects on the first problem.

Section 1.1 : Definition of Informationally Hard to Reach

Before selecting a sample area, a definition of who the target population is must be developed. In this case, the target is the informationally hard to reach. Who is the informationally hard to reach? The definition used here is as follows: The informationally hard to reach consists of people low socio-economic status (SES). Low SES defined in this case as people with income levels less than or equal to 150% of the 1990 poverty level, established by the Census Bureau, and have less than or equal to a high school diploma.

Using this definition it is possible to select a distinct population in which to conduct a mailing. With a definition in place, it is now necessary to define the geographic limits of the study. In this case it has been defined as the Baltimore, Maryland, and the surrounding counties. This consists of Anne Arundel, Baltimore, Carrol, Harford and Howard counties.

Section 1.2 : Definition of Parameters

The concept of a mailing to a specific group of people is a simple idea, but not a trivial task to complete. With a definition of a group of people in hand, the things that set them apart from everyone else must be broken down to individual statements. These individual components of the definition are then used as parameters in the selection process. If the components are not broken down enough or at all, the parameters become too complex and unmanageable. Using simplistic parameters, the selection process overall may take longer, but a more definitive result is achieved.

Section 1.2.1 : Description of Parameters Used

Following the definition stated in section 1.1, the parameter of income is presented as number of people. With the intention of this research to be carried out in the form of a mailing, it becomes apparent that number of people is not the correct unit to be used. Since a mailing of this type of information need only be sent to a house once, number of households would be a more appropriate measure. What about more than one family/household living in the same house? This question becomes mute because the number of multiple family households is relatively low and even if the mailing is sent to a multiple family house, there is a chance that the information will be passed along.

Keeping to the same line of logic, the education level should not be measured in people either. The correct measure in this case should be the education level of the head of household. Head of household is chosen because education level for the entire household would vary too much and deem the variable irrelevant.

Since this research study was providing information on breast cancer, additional limits were

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specified to add more meaning to the results. Race was added, as a parameter, to allow for a statistical breakdown. Women over the age of 40 would also be targeted since the incidence of breast cancer increases with age.

Section 1.2.2 : Description of the 4 Study Areas

This research study is intended to capture the behavior patterns of the informationally hard to reach. This population has been defined in section 1.1. In order make this data meaningful the converse population must also be studied. Thus, since the lower SES makes up the informationally hard to reach, the Upper SES must be studied as a comparison.

Cancer incidence and mortality rates are generally higher for black americans than for white. This statistic led us to examine race as a population separator. Black and white populations have the highest density, of all the races in the Baltimore area, so these were used in the study.

Using SES status and race, 4 areas populations were chosen for the study. They are as follows: Lower Black SES, Upper Black SES, Lower White SES and Upper White SES.

Section 1.2.3 : Initial Parameters Used in Sample Selection

Considering all that has been stated, the following are the parameters that were used to select the sample groups.

- For Low Socio-Economic Status

    - 60% of income levels:
        - with 1 person households at or below $9,465
        - with 2 person households at or below $12,114
        - with 3 person households at or below $14,828
        - with 4 person households at or below $19,011

        - Income levels based on 150% of 1990 poverty levels established by the Census Bureau

    - 60% of households with education levels designated for the head of the household equal to or less than a high school graduate (includes equivalency), no college

- For Median to Upper Socio-Economic Status

    - 60% of household income levels at or above $46,862

        - Income levels based on 150% of 1990 median income level established by the Census Bureau

    - 60% of household with education levels designated for the head of household as equal to some college credits or a degree(s)

- Predominately African American Females

    - 60% of head of household is classified as African American or Black

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- 60% of population are women 40 years of age or older

- <u>Predominantly White Females</u>

    - 60% of head of household is classified as White

    - 60% of population are women 40 years of age or older

As manipulation of the census data took place, it was necessary to modify these parameters for a number of reasons. These reasons will be explained in section 3 of this document.

Section 1.2.4 : Source Data Used

Looking at the nature of the parameters and the data that is available, it appears that the U.S. Census files would work the best. The 1990 U.S. Census, being the most current, was used. We acquired copies the 1990 U.S. Census Topologically Integrated Geographic Encoding & Reference (TIGER) Files, produced by the US Department of Commerce, from Tri-County Council of Western Maryland. These files were preprocessed to allow access to census data to the census block group level by county.

Section 1.3 : Definition Strategy to Define Population

Now that a definition of the target population and the parameters which delimit this population are in place, a strategy must be developed with which to delineate each of the 4 sample areas. Area is the key. An area is a particular portion of the earth's surface. Defining the problem in terms of area and given that census data is intrinsically area based, the use of GIS software is evident.

Section 1.3.1 : Definition of GIS

A GIS, or Geographic Information System, is a relational database that utilizes spatial data to perform manipulation and analysis. A GIS, in essence, allows the user to relate physical objects (e.g., buildings, roads, utility poles) or abstract concepts (e.g., zoning, election districts, census tracts) to specific points, lines or areas on the earth. In a GIS, a building, for example, knows exactly how far it is from every other building in the GIS (e.g., spatial). That self same building knows what election district or census tract it falls in, assuming that this data has been entered into the GIS (e.g., relational).

This type of software also allows for the input of additional information related to specific items. Such as the diameter of a water pipe, the color of a house or the last time a road was paved, to name a few examples. The ability is then available to perform queries on this related data to make selection sets. These abilities make a GIS a very powerful tool.

The U.S. Census TIGER files are created upon this same principle. The demographic data is divide into county, census tract and census block group levels. These are all areas which can be analyzed using a GIS to generate selection sets.

ARCInfo, ArcCad, MIPS and STRINGS are GIS software programs. The program used in this study was ArcCad.

Section 1.3.2 : 1st Strategy to Select Sample Areas Using a GIS

Considering the U.S. Census TIGER files are readily compatible with a GIS it seems logical to use such software to select the sample areas. The strategy to perform such a selection using a GIS is as follows:

1. **Extract the items to be used for analysis from the TIGER files to create a database of a workable size.** The size of the files which make up the census data is extremely large. In fact, the Summary Tape File (STF) 1 & 3, in which the necessary data is stored, is made up of 34 different database files totaling as much as 35 megabytes in size. Each of these files are close to the maximum width allowable for a Dbase IV file. Because of this, it was necessary to extract the items we needed, for each record. This is done at the census block group level because at the census block level the demographic data is too sparse to calculate meaningful percentages.

2. **Query the new database using ARCView, by the parameters listed above, to establish the areas for each study.** ARCView is a geographical database viewer which would allow us to quickly make selections, by varying the parameters that were listed above. During this query step, the basic effort is designed to delineate areas which meet the parameters and produce the necessary population to perform the mailing.

3. **Extract the TIGER Road files, using the boundary of the selected areas as delimiter, to acquire address ranges.** Once the areas were selected, the boundaries of the selected areas would be used as "cookie cutters" to extract the roads that existed within those areas. These roads have address range information linked to them which shows the minimum and maximum addresses which fall on that road.

4. **Query Select Phone (a reverse phone directory software product), on the address ranges.** The address ranges would be used to select the names of people who live within those ranges.

5. **Select the names and addresses to be used in the mailing, in accordance with a randomization procedure.** After gathering a pool of names to draw from, a randomization is applied to the list. The resulting list would then be used as a mailing list.

These steps represent the originally planned route to create the list of addresses for each of the 4 test areas to be studied. The following section goes into detail about the steps actually taken and the problems which caused a change in approach.

Section 2 : First Attempt at Sample Selection

The selection of the sample areas was a long process. It required knowledge of the parameters that would be used and a strategy with which the process would be initiated. In this study the parameters were identified in Section 1.2.3 and the strategy defined in Section 1.3.2. As noted in the discussion of the strategy, the 1990 U.S. Census data was used for source data.

Section 2.1 : Steps for Extracting Items from TIGER Files

The following steps are general in nature. A more detailed explanation of the steps used in this study can be found in Section 2.2 of this document.

1. Determine which columns in the census files will be used as variables. The parameters, having been defined, must match the census data or the parameter becomes useless. Thus, the STF index must be searched to find fields in the database which provide the information which best describes the parameters. The STF index provides a descriptor of each field in the database, with the universe that the field was derived from. For example, P7 of STF3 gives the occurrence of each sex. P7 is divided into 2 fields; male and female. The universe for P7 is total persons.

It is also necessary to find a field which defines the universe for each of the parameters. This is required if any analysis will be done using percentages. Without the universe, there is no denominator with which to calculate a percentage from.

By searching this index, it will also tell you which sub-STF the fields will be located in. As stated in Section 1.3.2, The STFs are broken into 34 different database files. This allows for easier manipulation of the data.

2. Create ArcCad Themes. The next step in extracting the items is to create ArcCAD themes. This is done by using ArcCAD. ArcCAD is a GIS program which exists as an overlay of AutoCAD. ArcCAD is strong in database manipulation and calculation. An ArcCad theme represents a collection of logically associated geographic features (e.g., all roads go into one theme, all census tract lines go into another theme). All these features are said to be logically associated if they share a similar set of descriptive information. Themes allow ArcCAD to link the GIS data set with its respective AutoCAD drawing. This enables the ability to perform geographically referenced spatial analysis, based upon a predefined GIS data set or group of data sets. Such analysis or queries can also be used to form new data sets.

A theme must be created for each of the STFs that contain the fields that will be used.

3. Extracting the necessary fields from the TIGER files. This step is also done in ArcCAD. This can be done either manually or batch processed by writing a program in AutoLisp. AutoLisp is a programming language supported by AutoCAD, which ArcCAD runs on top of. Using the themes that were created in the previous step, extract the necessary fields and a field common to all of the sub-STFs, which contains a unique identifier for each record, from their current files and place them in a new file. Thus, a smaller file has been created for each of the larger files.

4. Convert character data to decimal. Examination of the extracted fields may show that some of the fields are stored in a character format. This causes a problem if selections are done on percentages. In order to create a percentage, a calculation must be done between two items. This requires that the items contain numeric data. Thus each item needs to be converted to numeric format.

5. Joining the extracted files. After the converting the files to numeric, all of the smaller files are combined to a single file. The unique field, common to each file, is necessary at this stage. Without this field, there is no way to ensure that each record was matching each record which is associated to it in each of the files that are combined.

6. Calculate percentages. The easiest way to make a selection with a parameter is by using a percentage. Since the census data deals with population (e.g. density), it is logical to use percentages. This step can also be done manually or using a software program.

1. Determine which columns in the census files will be used as variables. Using the parameters, listed in section 1.2.3, a search of the STF index was done to decide which items from the TIGER census data would be used. The items that were chosen came from Census Summary Tape Files 1 & 3. The following are the items which were used:

STF1a0

P0010001   -   Total number of persons

STF1a1

P0110013 --> P0110031 -   Persons aged 18 or higher
P0120052 --> P0120062 -   White females aged 40 or higher

STF1a2

P0120114 --> P0120124 -   Black females aged 40 or higher

STF1a7

H0010001   -   Total number of housing units
H0080001   -   Total number of white occupied housing units (race of householder)
H0080002   -   Total number of black occupied housing units (race of householder)

STF310

P0580001 --> P0580007 -   Educational attainment of white persons 25 years and over
P0580008 --> P0580014 -   Educational attainment of black persons 25 years and over

STF314

P0820001 --> P0820009 -   White household incomes in 1989
P0820010 --> P0820018 -   Black household incomes in 1989

2. Create ArcCad Themes. After the items to be used were identified, the task of stripping out those items followed. This was done by using ArcCAD. ArcCAD is a GIS program which exists as an overlay of AutoCAD. ArcCAD is strong in database manipulation and calculation. A theme was created for each of the previously mentioned files (e.g., STF310).

3. Extracting the necessary fields from the TIGER files. As the items were extracted from each STF, a new file was created. The reasoning for multiple files instead of combining all the items that were used was simple. If all items were contained in the same file, the size of the file would be quite large and would cause the processing of the next step to be cumbersome. It was decided that in this study programming this step would save a great deal of time. This step was actually the beginning of a program which included the next 2 steps. The programming was done in AutoLisp, an AutoCAD supported programming language.

When the program was run for the items that were used, it took anywhere from 30 to 90 minutes, depending on the size and population of the county that was being processed. The result, though time consuming, gave us a single file, for each county, with the data we needed, in a format we could use.

4. Convert character data to decimal. When looking at the extracted census files in Dbase, a majority of the items were formatted as character data. This was a problem since our purpose was to do selection on percentages. In order create a percentage, a calculation must be done between two items. This requires that the items contain numeric data. Thus, each item needed to be converted to numerically formatted items. The process is as follows:

1. Copy the contents of item A (the character formatted item) to a temporary item

2. Delete item A from the database

3. Add item B (a numeric formatted item) to the database

4. Copy the contents of the temporary item to item B

5. Joining the extracted files. Once the reformatting of the data was completed, the files were joined using the field which contained a unique identifier for each record. The identifier insured the integrity of the data. Without the identifier there would be no means to be sure if the data was matching the correct records. The identifier which was supplied in the data, provided by Tri-County Council for Western Maryland, was named BGCD. This field contained the complete census block group number with the state code attached.

6. Calculate percentages. It was decided to conduct the next step with a second program. This program would calculate all of the percentages for the related parameters. The process was to create an item the resulting percentage would be placed in. Then calculate the percentage into that new item. The general formulas were as follows:

Percent White over 25 with LT H.S. Diploma =
  (Number of White over 25 with LT H.S. Diploma / Total Pop.) * 100
Percent Black over 25 with LT H.S. Diploma =
  (Number of Black over 25 with LT H.S. Diploma / Total Pop.) * 100
Percent White over 25 with GE H.S. Diploma =
  (Number of White over 25 with GE H.S. Diploma / Total Pop.) * 100
Percent Black over 25 with GE H.S. Diploma =
  (Number of Black over 25 with GE H.S. Diploma / Total Pop.) * 100
Percent Income LT $25,000 =
  (Number of Households with Income LT $25,000 / Total # of Households) * 100
Percent Income GE $25,000 =
  (Number of Households with Income GE $25,000 / Total # of Households) * 100
Percent White Females GE 40 years of age =
  (Number of White Females GE 40 years of age / Total Pop.) * 100
Percent Black Females GE 40 years of age =
  (Number of Black Females GE 40 years of age / Total Pop.) * 100
Percent White Households =
  (Number of White Households / Total # of Households) * 100
Percent Black Households =
  (Number of Black Households / Total # of Households) * 100

Section 2.3 : Analysis of Extracted Data

After all of the percentages were created the data was analyzed the data in ArcView. Performing queries on the four parameters given in Section 1.2.3, enabled the selection of matching areas. The basis of these queries, as stated earlier, was to define areas in which to do a random mailing. Since random mailings of 5,000 units sample area were planned, at a ratio of 1 to 3, a population that totaled more than 15,000 was needed for each sample area. Keeping this in mind, data manipulation was conducted on the variables until a satisfactory sample size was established. Thus giving us four definitive areas for Middle and Upper White, Middle and Upper Black, Lower and Moderate White and Lower and Moderate Black.

Section 2.4 : Problems encountered

Serious problems were encountered with the percentages used in order to have more than 15,000 households. The following is an example of the percentages used in selecting the Lower and Moderate White:

Household Income   - 25%
Education Attainment   - 50%
Race   - 60%
White Female over 40   - 20%

At the beginning of the study, it was decided that the most important of the variables, in qualifying a census block group, were Education Attainment and Race. It was concluded that these had to be a bare minimum of 50%, but preferably 60% or greater. By using those standards, it became obvious that the other two variables could not be applied. The expectation of having all 4 variables at 60% or greater turned out to be inadequate by not producing 1/3 of the necessary sample size.

Another problem involved one of the parameters. The above percentages revealed that the expectations of having 60% of the population being white females over the age of 40 was unrealistic. For that variable to be true, that would only leave 40% of the population to include all of the men and all of the women below the age of 40. In fact, there was actually only one census tract in the counties being tested that fit that parameter. In southwestern Harford county there was a census tract that was 80%. There were 15 people in the census tract (12 women over the age of 40 and 3 men).

The most subtle, and most damaging, problem that arose, had to do with the fields selected from the census data. When first looking at the STF index, it was decided that total number of households would be used as a universal base to derive percentages from. Unfortunately, this figure included all vacant households as well. Thus, a percentage based on total number of households would generate an inaccurate value in relation to the actual population. This meant that the extraction of field H0020001, Total Number of Occupied Households, from STF1a7 was necessary. This required the entire process to begin anew.

Section 3 : Final Attempt at Sample Selection

After modifying and rerunning the two extraction programs, it was decided that reexamination of the selection process was necessary and a more conservative path of analysis should be taken. The reason was twofold. One, It was determined that based on the preliminary analysis, this would support a better decision making process. Two, documentation to support final selections could be better provided. A decision was made to only include two parameters instead of four. It was determined that

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the use of four parameters was too restrictive and that the area needed to gain enough of a sample would have been too large to be workable. The two parameters were race and income. The data calculated for the other two parameters would be used for informational comparisons only.

<u>Section 3.1 : Final Parameters Used in Sample Selection</u>

After reevaluating the initial parameters, the following states the parameters that were in the final selection:

- <u>For Low and Moderate Socio-Economic Status</u>

  - Percent of household income < = $25,000

    - Income level based on the closest available break in the household income field, in the census data, which included 150% of 1990 poverty levels established by the Census Bureau.

- <u>For Middle to Upper Socio-Economic Status</u>

  - Percent of household income > = $25,000

    - Income level based on the closest available break in the household income field, in the census data, which included 150% of 1990 poverty levels established by the Census Bureau.

- <u>Predominately African American Females</u>

  - Percent of head of household is classified as African American or Black

- <u>Predominantly White Females</u>

  - Percent of head of household is classified as White

<u>Section 3.2 : Final Strategy to Select Sample Areas Using a GIS</u>

After reevaluating the original strategy, the following shows the revised strategy used during this study:

1. Extract the items to be used for analysis from the TIGER files to create a database of a workable size. The size of the files which make up the census data was extremely large. In fact, the Summary Tape File (STF) 1 & 3, in which the necessary data was stored, was made up of 34 different database files totaling as much as 35 megabytes in size. Each of these files are close to the maximum width allowable for a Dbase IV file. Because of this, it was necessary to extract the items we needed,

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for each record. This was done at the census block group level because at the census block level the demographic data was too sparse to calculate meaningful percentages.

2. **Query the new database, by the parameters listed in Section 3.1, to establish the areas for each study.** Use a wide range of percentages, for each variable, which was narrowed by analysis to pinpoint a workable sample size. During this query step, the basic effort was designed to delineate areas which met the parameters and produced the necessary population to perform the mailing.

3. **Extract the TIGER Road files, using the boundary of the selected areas as delimiter, to acquire address ranges.** Once the areas were selected, the boundaries of the selected areas were used as "cookie cutters" to extract the roads that existed within those areas. These roads had address range information linked to them which showed the minimum and maximum addresses which fell on that road.

4. **Query Select Phone (a reverse phone directory software product), on the address ranges.** The address ranges were used to select the names of people who lived within those ranges.

5. **Select the names and addresses to be used in the mailing, in accordance with a randomization procedure.** After gathering a pool of names to draw from, a randomization was applied to the list. The resulting list was then used as a mailing list.

Section 3.3 : Steps used in the Final Attempt of this Study

1. **Determine which columns in the census files will be used as variables.** Using the parameters, listed in Section 1.2.3, a search of the STF index was done to decide which items from the TIGER census data would be used. The items that were chosen came from Census Summary Tape Files 1 & 3. The following are the items which were used:

STF1a0

P0010001	-	Total number of persons

STF1a1

P0110013 --> P0110031	-	Persons aged 18 or higher

STF1a7

H0020001	-	Total number of occupied housing units
H0080001	-	Total number of white occupied housing units (race of householder)
H0080002	-	Total number of black occupied housing units (race of householder)

STF302

P014b021 --> P014b031	-	Total number of white females 40 years and over
P014d021 --> P014d031	-	Total number of black females 40 years and over

STF310

P0580001 --> P0580007	-	Educational attainment of white persons 25 years and over
P0580008 --> P0580014	-	Educational attainment of black persons 25 years and over

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<u>STF314</u>

P0800001 --> P0800025	-	Total household incomes in 1989
P0820001 --> P0820009	-	White household incomes in 1989
P0820010 --> P0820018	-	Black household incomes in 1989

2. Create ArcCad Themes. After the items to be used were identified, the task of stripping out those items followed. This was done by using ArcCAD. ArcCAD is a GIS program which exists as an overlay of AutoCAD. ArcCAD is strong in database manipulation and calculation. A theme was created for each of the previously mentioned files (e.g., STF310).

3. Extracting the necessary fields from the TIGER files. As the items were extracted from each STF, a new file was created. The reasoning for multiple files instead of combining all the items that were used was simple. If all items were contained in the same file, the size of the file would be quite large and would cause the processing of the next step to be cumbersome. It was decided that in this study programming this step would save a great deal of time. This step was actually the beginning of a program which included the next 2 steps. The programming was done in AutoLisp, an AutoCAD supported programming language.

When the program was run for the items that were used, it took anywhere from 30 to 90 minutes, depending on the size and population of the county that was being processed. The result, though time consuming, gave us a single file, for each county, with the data we needed, in a format we could use.

4. Convert character data to decimal. When looking at the extracted census files in DBase, a majority of the items were formatted as character data. This was a problem since our purpose was to do selection on percentages. In order create a percentage, a calculation must be done between two items. This requires that the items contain numeric data. Thus, each item needed to be converted to numerically formatted items. The process on doing so is as follows:

1. Copy the contents of item A (the character formatted item) to a temporary item

2. Delete item A from the database

3. Add item B (a numeric formatted item) to the database

4. Copy the contents of the temporary item to item B

5. Joining the extracted files. Once the reformatting of the data was completed, the files were joined using the field which contained a unique identifier for each record. The identifier insure the integrity of the data. Without the identifier there would be no means to be sure if the data was matching the correct records. The identifier which was supplied in the data, provided by Tri-County Council for Western Maryland, was named BGCD. This field contained the complete census block group number with the state code attached.

6. Calculate percentages. It was decided to conduct the next step with a second program. This program would calculate all of the percentages for the related parameters. The process was to create an item the resulting percentage would be placed in. Then calculate the percentage into that new item. The general formulas were as follows:

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Percent White over 25 with LT H.S. Diploma =
(Number of White over 25 with LT H.S. Diploma / Total Pop.) * 100
Percent Black over 25 with LT H.S. Diploma =
(Number of Black over 25 with LT H.S. Diploma / Total Pop.) * 100
Percent White over 25 with GE H.S. Diploma =
(Number of White over 25 with GE H.S. Diploma / Total Pop.) * 100
Percent Black over 25 with GE H.S. Diploma =
(Number of Black over 25 with GE H.S. Diploma / Total Pop.) * 100
Percent Income LT $25,000 =
(Number of Households with Income LT $25,000 / Total # of Occupied Households) * 100
Percent Income GE $25,000 =
(Number of Households with Income GE $25,000 / Total # of Occupied Households) * 100
Percent White Females GE 40 years of age =
(Number of White Females GE 40 years of age / Total Pop.) * 100
Percent Black Females GE 40 years of age =
(Number of Black Females GE 40 years of age / Total Pop.) * 100
Percent White Households =
(Number of White Households / Total # of Occupied Households) * 100
Percent Black Households =
(Number of Black Households / Total # of Occupied Households) * 100

Section 3.4 : Analysis of Extracted Data

The following sections describe the more conservative approach taken during this stage of the study. All reference tables can be found in the Appendix of this document.

Section 3.4.1 : Analysis of Total Household by Income

After all of the percentages were created a report was generated in MS Excel, a spreadsheet program, and analyzed. A copy of this report, along with an explanation, can be found in the Appendix as Table 1.

Section 3.4.1.1 : Construction of Table 1

The total number of households came from census STF 1a7, column h0020001. This file was broken down by CBG (Census Block Group) and then totaled using a spreadsheet.

The income data came from census STF 314, column p0800001 through p0800025. Each of these columns were broken down by CBG. Low and Moderate income were defined as households which make less than $25,000 a year, which is the total of columns p0800001 through p0800008. Middle and upper income was defined as households which make $25,000 or more a year, which is the total of columns p0800009 through p0800025. Each of these totals were calculated in a spreadsheet.

The next step was to query the percent densities of low and moderate income households, in relation to total households (for each CBG in each county) varying from CBG densities of AT LEAST 20% up to densities of AT LEAST 60%. The same was done for the middle and upper income groupings. This procedure was done in DBase IV. A total of 10 queries were performed on each county. Each query created a new file (thus a total of 60 files were created in this step). The queries were as follows:

- Delete all CBGs which are < 20% low and moderate income households
- Delete all CBGs which are < 30% low and moderate income households
- Delete all CBGs which are < 40% low and moderate income households
- Delete all CBGs which are < 50% low and moderate income households
- Delete all CBGs which are < 60% low and moderate income households

- Delete all CBGs which are < 20% middle and upper income households
- Delete all CBGs which are < 30% middle and upper income households
- Delete all CBGs which are < 40% middle and upper income households
- Delete all CBGs which are < 50% middle and upper income households
- Delete all CBGs which are < 60% middle and upper income households

The resulting files from each query operation were then loaded into a spreadsheet. The selected records for each cell in the income columns were totaled respectively from the appropriate county files.

Section 3.4.1.2 : Analysis of Table 1

This report, which is titled Density Analysis of Total Households in Census Block Groups by Income, was developed to give an idea of the pool that was available to draw from. It was necessary to find out if there were enough people in both of the income groups to support the study. As shown in this report, there were enough households to draw from for this study. See Appendix, Table 1.

Section 3.4.2 : Analysis of Total Household by Race

This report was generated in MS Excel, a spreadsheet program, and analyzed. A copy of this report, along with an explanation, can be found in the Appendix, Table 2.

Section 3.4.2.1 : Construction of Table 2

The total number of households came from census STF 1a7, column h0020001. This file was broken down by CBG and then totaled using a spreadsheet.

The total number of white and black households came from census STF 1a7, columns h0080001 and h0080002 respectively. Each of these columns were broken down by CBG and then totaled using a spreadsheet.

The next step was to query the percent densities of black and white households in relation to the total number of households (for each CBG in all 6 counties). This data was evaluated varying from CBG densities of AT LEAST 20% up to densities of AT LEAST 60%. This was done in Dbase. There are a total of 10 queries which were made for each county. Each query created a new file (thus a total of 60 files were created in this step). The queries were as follows:

- Delete all CBGs which are < 20% white households
- Delete all CBGs which are < 30% white households
- Delete all CBGs which are < 40% white households
- Delete all CBGs which are < 50% white households
- Delete all CBGs which are < 60% white households

- Delete all CBGs which are < 20% black households
- Delete all CBGs which are < 30% black households

- Delete all CBGs which are < 40% black households
- Delete all CBGs which are < 50% black households
- Delete all CBGs which are < 60% black households

The resulting files from each operation were then loaded into a spreadsheet. The selected records for each county in the white and black households columns were totaled respectively from the appropriate county files, for each county.

Section 3.4.2.2 : Analysis of Table 2

This report, which is titled Density Analysis of Total Households in Census Block Groups by Race, was developed to give an idea of the pool that was available to draw from. It was necessary to find out if there were enough people from both races to support the study. As shown in this report, there were enough households to draw from for this study. See Appendix, Table 2.

Section 3.4.3 : Analysis of Total Household by Race and Income

These reports were generated in MS Excel, a spreadsheet program, and analyzed. A copy of these reports, along with their explanations, can be found in the Appendix as Tables 3 & 4.

Section 3.4.3.1 : Construction of Table 3

The total number of households came from census STF 1a7, column h0020001. This file was broken down by CBG and then totaled using a spreadsheet.
The total number of white and black households came from census STF 1a7, columns h0080001 and h0080002 respectively. Each of these columns were broken down by CBG and then totaled using a spreadsheet.
The next step was to query the percent densities of the following four, specifically defined, groups:

Black Households whose income is LESS THAN $25,000
Black Households whose income is $25,000 OR MORE
White Households whose income is LESS THAN $25,000
White Households whose income is $25,000 OR MORE

Race and income was defined, in the census, in a predefined file. The white households whose income was less than $25,000 was found in columns p0820001 through p0820004. White households whose income was greater than or equal to $25,000 was located in columns p0820005 through p0820009. Black households whose income was less than $25,000 was contained in columns p0820010 through p0820013. Black households whose income was $25,000 or more was comprised of columns p0820014 through p0820018. All of the previous columns were extracted from STF 314. Each of the grouping columns were imported into a spreadsheet and totaled. These totals were then divided by the total number of households in each CBG to gain a percentage density. This data (for each of the 6 counties) was then evaluated, in Dbase, varying from CBG densities of AT LEAST 40% up to densities of AT LEAST 60%. There were a total of 12 queries which were made on each county. Each query creates a new file (thus a total of 72 files are created in this step). The queries were as follows with low and moderate income defined as less than $25,000 and middle and upper income defined as $25,000 or more:

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- Delete all CBGs which are < 40% white low and moderate income households
- Delete all CBGs which are < 50% white low and moderate income households
- Delete all CBGs which are < 60% white low and moderate income households

- Delete all CBGs which are < 40% white middle and upper income households
- Delete all CBGs which are < 50% white middle and upper income households
- Delete all CBGs which are < 60% white middle and upper income households

- Delete all CBGs which are < 40% black low and moderate income households
- Delete all CBGs which are < 50% black low and moderate income households
- Delete all CBGs which are < 60% black low and moderate income households

- Delete all CBGs which are < 40% black middle and upper income households
- Delete all CBGs which are < 50% black middle and upper income households
- Delete all CBGs which are < 60% black middle and upper income households

The resulting files from each operation were then loaded into a spreadsheet. The selected records for each county in the (white/black) (low and moderate/middle and upper) income households columns were totaled respectively from the appropriate county files, for each county.

Section 3.4.3.2 : Analysis of Table 3

This report, which is titled Density Analysis Of Total Households in Census Block Groups by Race and Income, was developed as an intermediate report. A report designed to show the number of households within given percent densities. These numbers could then be evaluated easily so a percent range could be determined, that contains the required minimum number of households (15,000).

The analysis of this report showed that, in order to get the sample size that we needed, we were going to have to drop our percentage to between 50% and 60%. Also the smallest number of households was the Lower and Moderate Income White. It was determined that in order to keep data consistent across all four test areas, the lowest percent, necessary to derive the required draw, would be used. Thus, the Lower and Moderate Income White would be the group which set the percentage to use.

Section 3.4.3.3 : Construction of Table 4

This table was created as a result of visual analysis of Table 3. When looking at the last column (60%) of Table 3, there were not enough households in the selected areas to complete a random mailing (minimum of 15,000 households). When looking at the next to last column (50%) of Table 3, there were enough households for a random mailing. Thus, this table showed a break down of densities which range from 51% to 59% (low and moderate/middle and upper) income (black/white) households. The same process was used to create this table as Table 3. The only difference was the variables which were used to query on. Each query created a new file (thus a total of 216 files were created in this step). The queries were as follows:

- Delete all CBGs which are < 51% white low and moderate income households
- Delete all CBGs which are < 52% white low and moderate income households
- Delete all CBGs which are < 53% white low and moderate income households
- Delete all CBGs which are < 54% white low and moderate income households
- Delete all CBGs which are < 55% white low and moderate income households

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- Delete all CBGs which are < 56% white low and moderate income households
- Delete all CBGs which are < 57% white low and moderate income households
- Delete all CBGs which are < 58% white low and moderate income households
- Delete all CBGs which are < 59% white low and moderate income households

- Delete all CBGs which are < 51% white middle and upper income households
- Delete all CBGs which are < 52% white middle and upper income households
- Delete all CBGs which are < 53% white middle and upper income households
- Delete all CBGs which are < 54% white middle and upper income households
- Delete all CBGs which are < 55% white middle and upper income households
- Delete all CBGs which are < 56% white middle and upper income households
- Delete all CBGs which are < 57% white middle and upper income households
- Delete all CBGs which are < 58% white middle and upper income households
- Delete all CBGs which are < 59% white middle and upper income households

- Delete all CBGs which are < 51% black low and moderate income households
- Delete all CBGs which are < 52% black low and moderate income households
- Delete all CBGs which are < 53% black low and moderate income households
- Delete all CBGs which are < 54% black low and moderate income households
- Delete all CBGs which are < 55% black low and moderate income households
- Delete all CBGs which are < 56% black low and moderate income households
- Delete all CBGs which are < 57% black low and moderate income households
- Delete all CBGs which are < 58% black low and moderate income households
- Delete all CBGs which are < 59% black low and moderate income households

- Delete all CBGs which are < 51% black middle and upper income households
- Delete all CBGs which are < 52% black middle and upper income households
- Delete all CBGs which are < 53% black middle and upper income households
- Delete all CBGs which are < 54% black middle and upper income households
- Delete all CBGs which are < 55% black middle and upper income households
- Delete all CBGs which are < 56% black middle and upper income households
- Delete all CBGs which are < 57% black middle and upper income households
- Delete all CBGs which are < 58% black middle and upper income households
- Delete all CBGs which are < 59% black middle and upper income households

The resulting files from each operation were then loaded into a spreadsheet. The selected records for each county in the (white/black) (low and moderate/middle and upper) income households columns were totaled respectively from the appropriate county files, for each county.

Section 3.4.3.4 : Analysis of Table 4

This report, which is titled Density Analysis Of Total Households in Census Block Groups by Race and Income, was also developed as an intermediate report. The report was designed to show the number of households within given percent densities. These numbers could then be evaluated easily so a percent range could be determined, that contained the required minimum number of households (15,000).

The analysis of this report showed that the percent density which retained the minimum number

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of households was 55%. This was determined by looking at the Lower and Moderate Income White, since that was the smallest and therefore most restrictive group. The Lower and Moderate Income White group at 55% contained 21,081 households. This number, which was 6,081 households more than was needed, provided the ability for a larger mailing if necessary. 55% was also an acceptable percentage because it still defined a majority. For those reasons, all selection and analysis, from this point on, was done at 55% density.

Section 4 : Extraction of TIGER Roads

Section 4.1 : Statement of Purpose

The percentage concentration that was finally used was 55%. This was primarily dependant upon Low and Moderate Income White Households. At 55%, this group consisted of over 20,000 households, which was more than enough households to conduct the random mailing intended. With this decided, we were able to move to the next step. This involved the selection and extraction of all of the roads which fell within the selected CBGs. This was necessary because the road files in the TIGER files contain address ranges. These ranges came to be important in the next step.

Section 4.2 : Required Steps to Extract Roads

The process involved in extracting the roads was actually the simplest step. First, a theme was created, in ArcCAD, for the road files. Then query the data set on the 55% parameter. Once the CBGs were selected, the roads which fell within the selected areas were extracted from the road theme. This function pulled all of the roads in the selected areas from one theme and placed them in a new theme of their own.

These procedures had to be done for every county, for all four socio-economic groups. Once completed, the resulting data files contained all of the known address ranges within the selected CBGs. Since the roads were broken at every intersection, the size of these files in densely populated areas were quite large. Manipulation of these files would have been extensive.

Section 5 : Creation of a Mailing List

Section 5.1 : Pro-Phone Strategy

Now that the address ranges were established, the process of retrieving actual addresses could begin. It was decided that Pro-Phone, a reverse phone directory, would be used for the address list. The first step was to find all of the zip codes that fell, even partially in each county. These zip codes were used to query Pro-Phone's residential listings for all addresses which were listed. The matching addresses were exported to Dbase files corresponding to each one of the target counties. Because of the size of these files they were compressed for storage purposes. The largest of these files was Baltimore City, which uncompressed was close to 60 Mb.

Next, the selected TIGER road files were purged of all roads that contained no address information. This step left only roads with valid addresses in the file. Each of those files were then structurally modified to include two identical fields of 46 characters (for the two addresses defining the range) as well as two 11 character fields (for the minimum and maximum street numbers of the range).

A procedure was created, using Dbase programming language, to calculate the lower and upper street numbers for every one of the street segments. This was necessary because of the way the data was stored in the TIGER files. There were actually 2 address ranges per road within a TIGER file. These

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ranges were stored as addresses for the left side of the road and addresses for the right side of the road. Since there was no way to be sure which side of the road had the high end of the range and which side had the low end of the range, the high and low end of each side must be compared. This routine had to be applied to all of the roads within the study areas.

A second procedure was created, using Dbase programming language, to combine data in different fields, generating two street addresses per road. These addresses were the minimum and maximum address for each road segment. This routing also had to be applied to every road within the study areas.

Section 5.2 : Problems Encountered with Pro-Phone Strategy

The next step was to compare each record from the Pro-Phone generated files with each record in the road files, and export all the records that contained addresses that matched the address ranges. In an ideal world, the result would have consisted of files containing each one of the names and complete mailing addresses for each target study group. Unfortunately, the size of the Pro-Phone files and the conflict of file format caused the routine to be too cumbersome. The amount of time to allow this program to run was not remotely within the time frame that we needed the addresses. It was estimated that one of counties would take 2 years of computer run time to complete the reports required. There was also a serious flaw in the Pro-Phone data. It became apparent that Pro-Phone had considerably fewer addresses, in the areas we were looking, than the census said should be there. The following shows the Census and Pro-Phone selections by county:

County	# of Households According to Census	# of Addresses According to Pro-Phone
Anne Arundel	149,114	155,246
Baltimore City	276,484	294,893
Baltimore County	268,280	171,911
Carroll	42,248	5,873
Harford	63,193	24,413
Howard	68,337	7,475

Since the Pro-Phone data came partially from phone listings, non-listed phone numbers and their addresses would not show up. Although we believe that this was probably the case for some of the unaccounted addresses, the number was still far to small for our needs.

At this point it was decided to engage a mailing house in the first step of identifying addresses of households within the selected CBGs.

Section 6 : Summary

This section of the study uses Geographic Information Systems (GIS) to identify sample areas for a random mailing study. The strategy that was taken to perform this operation is described in detail. A brief list of the steps that were taken follows:

1. Extract the items to be used for analysis from the TIGER files to create a database of a workable size.

2. Query the new database, by the parameters listed in Section 3.1, to establish the areas for each study.
3. Extract the TIGER Road files, using the boundary of the selected areas as delimiter, to acquire address ranges.
4. Query Select Phone (a reverse phone directory software product), on the address ranges.
5. Select the names and addresses to be used in the mailing, in accordance with a randomization procedure.

Problems occurred during this study which caused a reevaluation of the strategy and a change in the original parameters. File sizes caused problems with data manipulation and storage. This approach takes a significant amount of disk space and is recommended to be used on a 486 or higher.

This approach allowed for the selection of the target areas to become a visual as well as statistical endeavor. The ability to see where the different SES groups are located is not only interesting but helpful in the understanding the distribution of populations. GIS is an exceptional tool for the analysis of any data which is derived or can be described visually. This approach will become common in the years to come.

Appendix

Table 1

Title: Density Analysis of Total Households in Census Block Groups By Income

The following table was compiled with data obtained from the 1990 US Census, produced by the U.S. Department of Commerce and processed by Tri-County Council of Western Maryland.

This table shows the total number of households for each county, the total number of households by income division for each county and the number of households by income division in relation to their percentage of the total number of households for each CBG (Census Block Group).

The total number of households came from census summary tape file 1a7, column h0020001. In this file it is broken down by CBG and is then totaled using a spreadsheet.

The income data came from census summary tape file 314, column p0800001 through p0800025. Each of these columns have been broken down by CBG. Low and Moderate income has been defined as households which make less than $25,000 a year, which is the total of columns p0800001 through p0800008. Middle and upper income has been defined as households which make $25,000 or more a year, which is the total of columns p0800009 through p0800025. Each of these totals are calculated in a spreadsheet.

The next step, which is not shown on the report itself, is to calculate the percent density of low and moderate income households, in relation to total households (for each CBG in each county) varying from CBG densities of AT LEAST 20% up to densities of AT LEAST 60%. The same is done for the middle and upper income groupings. When these percentages have been computed, the file is them loaded in to Dbase so that queries may be done. A total of 10 queries which are on each county. Each query creates a new file (thus a total of 60 files are created in this step). The queries are as follows:

- Delete all CBGs which are < 20% low and moderate income households
- Delete all CBGs which are < 30% low and moderate income households
- Delete all CBGs which are < 40% low and moderate income households
- Delete all CBGs which are < 50% low and moderate income households
- Delete all CBGs which are < 60% low and moderate income households

- Delete all CBGs which are < 20% middle and upper income households
- Delete all CBGs which are < 30% middle and upper income households
- Delete all CBGs which are < 40% middle and upper income households
- Delete all CBGs which are < 50% middle and upper income households
- Delete all CBGs which are < 60% middle and upper income households

The resulting files from each query operation are then loaded into a spreadsheet. The selected records for each cell in the income columns are totaled respectively from the appropriate county files. Once the income totals are obtained for each county in the study area, summary totals are computed. All the final data for each county and the summary totals are displayed to produce the following table.

This table allowed us to see if there were enough households to draw from in each category.

Density Analysis of Total Households in Census Block Groups by Income

Number of Low and Moderate Income Households by Percent of Total Households

	Total Households	Low and Moderate Income Households	20%	30%	40%	50%	60%
Anne Arundel	149114	32555	23138	13661	7282	4092	1120
Baltimore City	276484	142181	140817	134396	119398	89992	64073
Baltimore County	268280	74197	77830	58637	36671	18425	7152
Carroll	42248	9754	6560	4107	2077	636	313
Harford	63193	15344	11188	7137	5644	2780	758
Howard	68337	9591	4539	1538	436	328	221
Total	867656	283622	264072	219476	171508	116253	73637

Number of Middle and Upper Income Households by Percent of Total Households

	Total Households	Middle and Upper Income Households	20%	30%	40%	50%	60%
Anne Arundel	149114	116361	116285	116275	115869	114105	109318
Baltimore City	276484	134303	131327	125737	110121	86236	52213
Baltimore County	268280	194441	194441	193922	192804	187196	172692
Carroll	42248	32459	32459	32459	32246	32046	29412
Harford	63193	47750	47750	47750	47481	42865	42865
Howard	68337	59066	59066	59066	59066	58991	57931
Total	867656	584380	581328	575209	557587	521439	464431

NOTE: Lower Income is defined as a household whose income is less than $25,000 per year

KEY: This table shows the total number of households for each county, the total number of households by income division for each county and the number of households by income division in relation to their percentage of the total number of households for each CBG (Census Block Group).

For more information refer to the supporting documentation.

Table 1

Table 2

Title: Density Analysis of Total Households in Census Block Groups by Race

The following table was compiled with data obtained from the 1990 U.S. Census, produced by the U.S. Department of Commerce and processed by Tri-County Council of Western Maryland.

This table shows the total number of households by county, the total number of households of a specified race by county, the number of households of a specified race related to the percentage density of that specified race in each CBG by county. The table also shows the total number of households in each CBG within each county, whose percent of a specified race qualifies the CBG.

The total number of households came from census summary tape file 1a7, column h0020001. In this file it is broken down by CBG and is then totaled using a spreadsheet.

The total number of white and black households came from census summary tape file 1a7, columns h0080001 and h0080002 respectively. Each of these columns have been broken down by CBG and is then totaled using a spreadsheet.

The next step, which is not shown in the table, is to calculate the percent density of black and white households in relation to the total number of households (for each CBG in all 6 counties). This data is evaluated varying from CBG densities of AT LEAST 20% up to densities of AT LEAST 60%. Once this has been done the files are then imported in to Dbase for query analysis. There are a total of 10 queries which are made on each county. Each query creates a new file (thus a total of 60 files are created in this step). The queries are as follows:

- Delete all CBGs which are < 20% white households
- Delete all CBGs which are < 30% white households
- Delete all CBGs which are < 40% white households
- Delete all CBGs which are < 50% white households
- Delete all CBGs which are < 60% white households

- Delete all CBGs which are < 20% black households
- Delete all CBGs which are < 30% black households
- Delete all CBGs which are < 40% black households
- Delete all CBGs which are < 50% black households
- Delete all CBGs which are < 60% black households

The resulting files from each operation are then loaded into a spreadsheet. The selected records for each county in the white and black households columns are totaled respectively from the appropriate county files, for each county. The headings for these results, on the table, are "Number of (Black/White) Households by Percent of Total Households". These totals are listed, on the table, under the percentage which was queried to obtain that figure.

The total households column is totaled, across the same files as above, for each county. The headings for these results, on the table, are "Total Number of Households in Percent (Black/White) Defined Census Block Groups". These totals are listed, on the table under the percent of the corresponding race that was queried on above to obtain that figure.

The example below may help clarify interpretation of the table.

Example: There are 14,838 black households in Anne Arundel County. Of those 14,838 households, 8,044 are found in CBGs which are AT LEAST 20% black. The total number of households in those CBGs which are AT LEAST 20% black is 22,535.

This table allowed us to see if there were enough households to draw from in each category.

Density Analysis of Total Households in Census Block Groups by Race

	Total Households	Total Black Households	Number of Black Households by Percent of Total Households					Total Number of Households in Percent Black Defined Census Block Groups				
			20%	30%	40%	50%	60%	20%	30%	40%	50%	60%
Anne Arundel	149114	14838	8044	4638	3604	2881	2572	22535	8582	5732	4152	3589
Baltimore City	276484	146938	141970	137722	134446	130489	125410	180040	163603	154107	145151	135793
Baltimore County	268280	30413	22732	19947	16346	14601	11936	45863	34726	24297	20335	15339
Carroll	42248	791	4	0	0	0	0	19	0	0	0	0
Harford	63193	5010	2200	1454	413	130	0	6937	4062	918	228	0
Howard	68337	7693	2048	743	65	65	0	7432	2276	115	115	0
Total	867656	205683	176998	164504	154874	148166	139918	262826	213249	185169	169981	154721

	Total Households	Total White Households	Number of White Households by Percent of Total Households					Total Number of Households in Percent White Defined Census Block Groups				
			20%	30%	40%	50%	60%	20%	30%	40%	50%	60%
Anne Arundel	149114	131621	131570	131257	130750	130534	128475	148283	147035	145502	144995	141358
Baltimore City	276484	125275	121436	119580	115337	111368	105818	158493	151312	139131	130393	120261
Baltimore County	268280	232456	231800	230259	229079	226527	222235	262298	256039	252588	246936	239371
Carroll	42248	41210	41196	41196	41196	41196	41196	42229	42229	42229	42229	42229
Harford	63193	57177	57177	57177	57177	57081	56684	63193	63193	63193	62965	62275
Howard	68337	58066	58066	58066	58066	58016	58016	68337	68337	68337	68222	68222
Total	867656	645805	641245	637535	631605	624722	612424	742833	728145	710980	695740	673716

Example: There are 14,838 black households in Anne Arundel County. Of those 14,838 households, 8,044 are found in CBGs which are AT LEAST 20% black. The total number of households in those CBGs which are AT LEAST 20% black is 22,535.

Key: This table shows the total number of households by county, the total number of households of a specified race by county, the number of households of a specified race related to the percentage density of that specified race in each CBG by county. The table also shows the total number of households in each CBG within each county whose percent of a specified race qualifies the CBG.

For more information refer to the supporting documentation.

Table 2

Table 3

Title: Density Analysis of Total Households in Census Block Groups by Race and Income

The following table was compiled with data obtained from the 1990 U.S. Census, produced by the U.S. Department of Commerce and processed by Tri-County Council of Western Maryland.

This table shows the total number of households by county, the total number of households of a specified race by county, the number of households of a specified race and income range related to the percentage density of that specified race and income range in each CBG by county. The table also shows the total number of households in each CBG within each county, whose percent of a specified race and income range qualifies the CBG.

The total number of households came from census summary tape file 1a7, column h0020001. In this file it is broken down by CBG and is then totaled using a spreadsheet.

The total number of white and black households came from census summary tape file 1a7, columns h0080001 and h0080002 respectively. Each of these columns have been broken down by CBG and is then totaled using a spreadsheet.

The next step, which is not shown in the table, is to calculate the percent density of the following four, specifically defined, groups:

Black Households whose income is LESS THAN $25,000
Black Households whose income is $25,000 OR MORE
White Households whose income is LESS THAN $25,000
White Households whose income is $25,000 OR MORE

Race and income is defined, in the census, in a predefined file. The white households whose income is less than $25,000 is found in columns p0820001 through p0820004. White households whose income is greater than or equal to $25,000 is located in columns p0820005 through p0820009. Black households whose income is less than $25,000 is contained in columns p0820010 through p0820013. Black households whose income is $25,000 or more is comprised of columns p0820014 through p0820018. All of the previous columns were extracted from summary tape file 314. Each of the grouping columns were imported into a spreadsheet and totaled. These totals were them divided by the total number of households in each CBG to gain a percentage density. This date (for each of the 6 counties) was then evaluated, in Dbase, varying from CBG densities of AT LEAST 40% up to densities of AT LEAST 60%. There are a total of 12 queries which are made on each county. Each query creates a new file (thus a total of 72 files are created in this step). The queries are as follows with low and moderate income defined as less than $25,000 and middle and upper income defined as $25,000 or more:

- Delete all CBGs which are < 40% white low and moderate income households
- Delete all CBGs which are < 50% white low and moderate income households
- Delete all CBGs which are < 60% white low and moderate income households

- Delete all CBGs which are < 40% white middle and upper income households
- Delete all CBGs which are < 50% white middle and upper income households
- Delete all CBGs which are < 60% white middle and upper income households

- Delete all CBGs which are < 40% black low and moderate income households
- Delete all CBGs which are < 50% black low and moderate income households
- Delete all CBGs which are < 60% black low and moderate income households

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- Delete all CBGs which are < 40% black middle and upper income households
- Delete all CBGs which are < 50% black middle and upper income households
- Delete all CBGs which are < 60% black middle and upper income households

      The resulting files from each operation are then loaded into a spreadsheet. The selected records for each county in the (white/black) (low and moderate/middle and upper) income households columns are totaled respectively from the appropriate county files, for each county. The headings for these results, on the table, are "Number of (Low and Moderate/Middle and Upper) Income (Black/White) Households by Percent Density of Total Households". These totals are listed, on the table, under the percent of the corresponding race that was queried on above to obtain that figure.
      The example below may help clarify interpretation of the table.

Example: There are 14,838 black households in Anne Arundel County. Of those 14,838 households, 1,297 are found in CBGs which are made up of AT LEAST 40% low and moderate income black households. The total number of households in those CBGs, which are made up of AT LEAST 40% low and moderate income black households, is 2,505.

      The analysis of this table shows us that, in order to get the sample size that we needed, we were going to have to drop our percentage to between 50% and 60%. We also saw that the smallest number of households was the Lower and Moderate Income White. It was determined that in order to keep things consistent across all four test areas, the lowest percent, necessary to derive the required draw, would be used. Thus, the Lower and Moderate Income White would be the group which set the percentage to use.

Density Analysis of Total Households in Census Block Groups by Race and Income

	Total Households	Total Black Households	Number of Low and Moderate* Income Black Households by Percent of Total Households			Total Number of Households in Percent Defined Black Low and Moderate* Income Census Block Groups		
			40%	50%	60%	40%	50%	60%
Anne Arundel	149114	14838	1297	413	413	2505	502	502
Baltimore City	276484	146938	65283	53806	36406	104010	78521	47142
Baltimore County	268280	30413	1326	472	0	2941	906	0
Carroll	42248	791	0	0	0	0	0	0
Harford	63193	5010	94	0	0	228	0	0
Howard	68337	7693	0	0	0	0	0	0
Total	867656	205683	68000	54691	36819	109684	79929	47644

	Total Households	Total Black Households	Number of Middle and Upper** Income Black Households by Percent of Total Households			Total Number of Households in Percent Defined Black Middle and Upper** Income Census Block Groups		
			40%	50%	60%	40%	50%	60%
Anne Arundel	149114	14838	526	298	115	1001	521	163
Baltimore City	276484	146938	33311	19749	9534	63240	32968	14249
Baltimore County	268280	30413	7792	5197	3094	14286	8470	4723
Carroll	42248	791	0	0	0	0	0	0
Harford	63193	5010	0	0	0	0	0	0
Howard	68337	7693	0	0	0	0	0	0
Total	867656	205683	41629	25244	12743	78527	41959	19135

*Lower Income has been defined for this table as households that make less than $25,000 a year

**Upper Income has been defined for this table as households that make $25,000 or more a year

Key: This table shows the total number of households by county, the total number of households of a specified race by county, the number of households of a specified race and incomerange related to the percentage density of that specified race and income range in each CBG by county. The table also shows the total number of households in each CBG within each county, whose percent of a specified race and income range qualifies the CBG. *For more information refer to the supporting documentation.*

Table 3

Density Analysis of Total Households in Census Block Groups by Race and Income (cont.)								
			Number of Low and Moderate* Income White Households by Percent of Total Households			Total Number of Households in Percent Defined White Low and Moderate* Income Census Block Groups		
	Total Households	Total White Households	40%	50%	60%	40%	50%	60%
Anne Arundel	149114	131621	1831	780	312	3853	1357	471
Baltimore City	276484	125275	27442	16516	6124	53152	28478	9144
Baltimore County	268280	232456	15082	5497	1422	31514	9712	2217
Carroll	42248	41210	1676	594	0	3586	1082	0
Harford	63193	57177	1868	652	119	3992	1157	185
Howard	68337	58066	416	241	221	689	288	254
Total	867656	645805	48315	24280	8198	96786	42074	12271
			Number of Middle and Upper** Income White Households by Percent of Total Households			Total Number of Households in Percent Defined White Middle and Upper** Income Census Block Groups		
	Total Households	Total White Households	40%	50%	60%	40%	50%	60%
Anne Arundel	149114	131621	103439	100877	90913	141704	135735	117480
Baltimore City	276484	125275	50417	37157	20295	88738	59177	28534
Baltimore County	268280	232456	161626	151306	130027	234659	211700	173250
Carroll	42248	41210	31664	31371	28850	41635	40933	36364
Harford	63193	57177	42126	40874	36338	57165	54407	46133
Howard	68337	58066	50709	48892	46639	68147	64307	60230
Total	867656	645805	439981	410477	353062	632048	566259	461991

*Lower Income has been defined for this table as households that make less than $25,000 a year
**Upper Income has been defined for this table as households tat make $25,000 or more a year

Key: This table shows the total number of households by county, the total number of households of a specified race by county, the number of households of a specified race and incomerange related to the percentage density of that specified race and income range in each CBG by county. The table also shows the total number of households in each CBG within each county, whose percent of a specified race and income range qualifies the CBG.
For more information refer to the supporting documentation.

Table 3

Table 4

Title: Density Analysis of Total Households in Census Block Groups by Race and Income

The following table was compiled with data obtained from the 1990 U.S. Census, produced by the US Department of Commerce and processed by Tri-County Council of Western Maryland.

This table was created as a result of visual analysis of Table 3. When looking at the last column (60%) of Table 3, there were not enough households in the selected areas to complete a random mailing (minimum of 15,000 households). When looking at the next to last (50%) of Table 3, there are enough households for a random mailing. Thus, this table shows a break down of densities which range from 51% to 59% (low and moderate/middle and upper) income (black/white) households. The same process was used to create this table as Table 3. The only difference is the variables which were used to query on. Each query creates a new file (thus a total of 216 files are created in this step). The queries are as follows:

- Delete all CBGs which are < 51% white low and moderate income households
- Delete all CBGs which are < 52% white low and moderate income households
- Delete all CBGs which are < 53% white low and moderate income households
- Delete all CBGs which are < 54% white low and moderate income households
- Delete all CBGs which are < 55% white low and moderate income households
- Delete all CBGs which are < 56% white low and moderate income households
- Delete all CBGs which are < 57% white low and moderate income households
- Delete all CBGs which are < 58% white low and moderate income households
- Delete all CBGs which are < 59% white low and moderate income households

- Delete all CBGs which are < 51% white middle and upper income households
- Delete all CBGs which are < 52% white middle and upper income households
- Delete all CBGs which are < 53% white middle and upper income households
- Delete all CBGs which are < 54% white middle and upper income households
- Delete all CBGs which are < 55% white middle and upper income households
- Delete all CBGs which are < 56% white middle and upper income households
- Delete all CBGs which are < 57% white middle and upper income households
- Delete all CBGs which are < 58% white middle and upper income households
- Delete all CBGs which are < 59% white middle and upper income households

- Delete all CBGs which are < 51% black low and moderate income households
- Delete all CBGs which are < 52% black low and moderate income households
- Delete all CBGs which are < 53% black low and moderate income households
- Delete all CBGs which are < 54% black low and moderate income households
- Delete all CBGs which are < 55% black low and moderate income households
- Delete all CBGs which are < 56% black low and moderate income households
- Delete all CBGs which are < 57% black low and moderate income households
- Delete all CBGs which are < 58% black low and moderate income households
- Delete all CBGs which are < 59% black low and moderate income households

- Delete all CBGs which are < 51% black middle and upper income households
- Delete all CBGs which are < 52% black middle and upper income households

- Delete all CBGs which are < 53% black middle and upper income households
- Delete all CBGs which are < 54% black middle and upper income households
- Delete all CBGs which are < 55% black middle and upper income households
- Delete all CBGs which are < 56% black middle and upper income households
- Delete all CBGs which are < 57% black middle and upper income households
- Delete all CBGs which are < 58% black middle and upper income households
- Delete all CBGs which are < 59% black middle and upper income households

The format for Table 4 reads the same as Table 3.

Looking at the Lower and Moderate Income White, it was decided that 55% would be the percentage use in the final selection.

Density Analysis of Total Households in Census Block Groups by Race and Income
Refined Analysis of 51% - 59% Density

Black Low and Moderate* Income

County	Total Households	Total Black Households	Number of Low and Moderate* Income Black Households by % of Total Households									Total Number of Households in % Defined Black Low and Moderate* Income Census Block Groups								
			51%	52%	53%	54%	55%	56%	57%	58%	59%	51%	52%	53%	54%	55%	56%	57%	58%	59%
Anne Arundel	149114	14838	413	413	413	413	413	413	413	413	413	502	502	502	502	502	502	502	502	502
Baltimore City	276484	146938	53255	51205	49684	48985	46759	45211	42847	40276	37808	77430	73442	70534	69232	65153	62369	58185	53714	49504
Baltimore County	268280	30413	289	289	271	0	0	0	0	0	0	543	509	0	0	0	0	0	0	0
Carroll	42248	791	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harford	63193	5010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Howard	68337	7693	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	867656	205683	53957	51907	50368	49398	47172	45624	43260	40689	38221	78475	74487	71545	69734	65655	62871	58687	54216	50006

Black Middle and Upper** Income

County	Total Households	Total Black Households	Number of Middle and Upper** Income Black Households by % of Total Households									Total Number of Households in % Defined Black Middle and Upper** Income Census Block Groups								
			51%	52%	53%	54%	55%	56%	57%	58%	59%	51%	52%	53%	54%	55%	56%	57%	58%	59%
Anne Arundel	149114	14838	298	115	115	115	115	115	115	115	115	521	163	163	163	163	163	163	163	163
Baltimore City	276484	146938	18482	16549	16143	15156	14533	13250	12645	12159	10643	30452	26700	25924	24079	22935	20622	19553	18705	16107
Baltimore County	268280	30413	5197	4943	4943	4943	4943	4753	3938	3456	3094	8470	7981	7981	7981	7981	7637	6192	5347	4723
Carroll	42248	791	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harford	63193	5010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Howard	68337	7693	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	867656	205683	23977	21607	21201	20214	19591	18118	16698	15730	13852	39443	34844	34068	32223	31079	28422	25908	24215	20993

White Low and Moderate* Income

County	Total Households	Total White Households	Number of Low and Moderate* Income White Households by % of Total Households									Total Number of Households in % Defined White Low and Moderate* Income Census Block Groups								
			51%	52%	53%	54%	55%	56%	57%	58%	59%	51%	52%	53%	54%	55%	56%	57%	58%	59%
Anne Arundel	149114	131621	780	780	432	312	312	312	312	312	312	1357	696	471	471	471	471	471	471	471
Baltimore City	276484	125275	15406	14127	11357	11052	9412	8907	7119	6777	6195	26274	23790	18519	17947	14933	14019	10855	10260	9263
Baltimore County	268280	232456	4754	4754	3525	2911	2705	2653	2653	2653	2434	8245	8245	5898	4759	4380	4287	4287	4287	3915
Carroll	42248	41210	594	594	594	594	271	0	0	0	0	1082	1082	1082	488	0	0	0	0	0
Harford	63193	57177	558	514	514	319	319	319	319	319	319	972	887	887	521	521	521	521	521	521
Howard	68337	58066	241	241	241	241	241	241	241	241	221	288	288	288	288	288	288	288	288	254
Total	867656	645805	22333	21010	16663	15429	13260	12432	10644	10302	9481	38218	35649	27370	25068	21081	19586	16422	15827	14424

White Middle and Upper** Income

County	Total Households	Total White Households	Number of Middle and Upper** Income White Households by % of Total Households									Total Number of Households in % Defined White Middle and Upper** Income Census Block Groups								
			51%	52%	53%	54%	55%	56%	57%	58%	59%	51%	52%	53%	54%	55%	56%	57%	58%	59%
Anne Arundel	149114	131621	98612	98239	98239	97231	95874	95006	94310	91483	91483	131252	130531	130531	128647	126155	124602	123373	118437	118437
Baltimore City	276484	125275	35100	33841	32583	30499	29354	28355	26750	24057	20593	55121	52677	50274	46378	44278	42471	39634	34942	29034
Baltimore County	268280	232456	150888	149603	146842	145512	142102	139179	136324	133371	132130	210876	208390	203136	200651	194398	189120	184054	179120	176781
Carroll	42248	41210	3137	30553	30349	30264	30225	30225	29965	29749	29314	40933	38949	38791	38719	38262	38262	38719	38719	37139
Harford	63193	57177	39914	39914	39554	39554	39163	38678	37343	36958	36611	52492	52492	51804	51804	51082	50208	47853	47183	46391
Howard	68337	58066	48892	48767	48748	47826	47826	47532	47532	47041	46639	64307	64063	62303	61776	61776	61776	60919	60230	60230
Total	867656	645805	376543	400917	396315	390886	384544	378975	372224	362659	356770	554981	547490	538721	528574	516935	506896	494952	478274	468012

*Lower Income has been defined for this table as households that make less than $25,000 a year
**Upper Income has been defined for this table as households tat make $25,000 or more a year

Table 4

Table 5

Title: Analysis of Age Group Densities for Selected Areas

   The following table was compiled with data obtained from the 1990 census, produced by the U.S. Department of Commerce and processed by Tri-County Council of Western Maryland.
   This table was created to analyze the age group densities for the selected areas for the following Socio-Economic Status parameters:

> 50% Middle and Upper Income Black
> 50% Low and Moderate Income Black
> 50% Middle and Upper Income White
> 50% Low and Moderate Income White
>
> 60% Middle and Upper Income Black
> 60% Low and Moderate Income Black
> 60% Middle and Upper Income White
> 60% Low and Moderate Income White

   For each selection, the total population is listed. This figure came from the census summary tape file 1a0, column p0010001, listed at the county level. The second column, listed in Table 5, refers to the total number of people who live in the areas which meet the above defined criteria. These figures are a total of column p0010001, from census summary tape file 1a0, broken down to the CBG level, for the qualifying CBGs. These are also totaled and listed by county.
   The next column is derived from census summary tape file 1a1, columns p0110013 through p0110031, at the CBG level. These columns from the census report, when totaled, list the number of people, in each CBG, that are 18 years of age or over. These numbers are totaled by county and are summarily listed on the table. The next column in the table, titled "Percent Density of Selected Area 18 and Older", is calculated by dividing the total selected population 18 and older by the total selected population.
   The last two columns are derived the same way as the preceding two columns were with the exception that columns p0110018 through p0110031 were used.
   All Dbase selections needed to create this table were done during the creation of Table 3. All data related with this table is defined in those files.

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Analysis of Age Group Densities for Selected Areas

	Census Areas 50% Middle and Upper Income Black					
			Total Selected	Percent Density	Total Selected	Percent Density
	Total	Total Selected	Population	of Selected Area	Population	of Selected Area
	Population	Population	18 and Older	18 and Older	25 and Older	25 and Older
Anne Arundel	427239	2079	1606	77.24867725	1247	59.98075998
Baltimore City	736014	101510	76800	75.65757068	65512	64.53748399
Baltimore County	692134	23438	17313	73.86722417	14657	62.53519925
Carroll	123372	0	0	0	0	0
Harford	182132	0	0	0	0	0
Howard	187328	0	0	0	0	0
Total	2348219	127027	95719	75.35327135	81416	64.09346045

	Census Areas 50% Low and Moderate Income Black					
			Total Selected	Percent Density	Total Selected	Percent Density
	Total	Total Selected	Population	of Selected Area	Population	of Selected Area
	Population	Population	18 and Older	18 and Older	25 and Older	25 and Older
Anne Arundel	427239	1451	868	59.82081323	700	48.24259132
Baltimore City	736014	222350	154905	69.66719136	129685	58.32471329
Baltimore County	692134	3014	2389	79.26343729	2156	71.53284672
Carroll	123372	0	0	0	0	0
Harford	182132	0	0	0	0	0
Howard	187328	0	0	0	0	0
Total	2348219	226815	158162	69.73171968	132541	58.43572956

	Census Areas 50% Middle and Upper Income White					
			Total Selected	Percent Density	Total Selected	Percent Density
	Total	Total Selected	Population	of Selected Area	Population	of Selected Area
	Population	Population	18 and Older	18 and Older	25 and Older	25 and Older
Anne Arundel	427239	381464	288756	75.69678921	248792	65.22030912
Baltimore City	736014	140029	113774	81.25031244	100136	71.51090131
Baltimore County	692134	549318	430076	78.29271934	381800	69.50436723
Carroll	123372	118515	86380	72.88528878	76315	64.39269291
Harford	182132	156295	114785	73.44124892	100202	64.11081608
Howard	187328	178483	131684	73.77957565	116163	65.08350935
Total	2348219	1524104	1165455	76.46820689	1023408	67.14817362

	Census Areas 50% Low and Moderate Income White					
			Total Selected	Percent Density	Total Selected	Percent Density
	Total	Total Selected	Population	of Selected Area	Population	of Selected Area
	Population	Population	18 and Older	18 and Older	25 and Older	25 and Older
Anne Arundel	427239	3409	2578	75.62334996	2167	63.56702845
Baltimore City	736014	68983	53696	77.83946769	46060	66.77007379
Baltimore County	692134	24478	20507	83.77726938	14182	57.93774001
Carroll	123372	2339	1888	80.71825566	1579	67.50748183
Harford	182132	3160	2297	72.68987342	1952	61.7721519
Howard	187328	2001	1889	94.4027986	1571	78.51074463
Total	2348219	104370	82855	79.38583884	67511	64.68429625

Table 5

Analysis of Age Group Densities for Selected Areas

| | Census Areas 60% Middle and Upper Income Black | | | | | |
	Total Population	Total Selected Population	Total Selected Population 18 and Older	Percent Density of Selected Area 18 and Older	Total Selected Population 25 and Older	Percent Density of Selected Area 25 and Older
Anne Arundel	427239	1106	812	73.41772152	536	48.46292948
Baltimore City	736014	43791	33382	76.23027563	28401	64.85579229
Baltimore County	692134	13630	10012	73.45561262	8430	61.8488628
Carroll	123372	0	0	0	0	0
Harford	182132	0	0	0	0	0
Howard	187328	0	0	0	0	0
Total	2348219	58527	44206	75.53095153	37367	63.84574641

| | Census Areas 60% Low and Moderate Income Black | | | | | |
	Total Population	Total Selected Population	Total Selected Population 18 and Older	Percent Density of Selected Area 18 and Older	Total Selected Population 25 and Older	Percent Density of Selected Area 25 and Older
Anne Arundel	427239	1451	868	59.82081323	700	48.24259132
Baltimore City	736014	133734	91256	68.23694797	77099	57.65100872
Baltimore County	692134	0	0	0	0	0
Carroll	123372	0	0	0	0	0
Harford	182132	0	0	0	0	0
Howard	187328	0	0	0	0	0
Total	2348219	135185	92124	68.1466139	77799	57.55002404

| | Census Areas 60% Middle and Upper Income White | | | | | |
	Total Population	Total Selected Population	Total Selected Population 18 and Older	Percent Density of Selected Area 18 and Older	Total Selected Population 25 and Older	Percent Density of Selected Area 25 and Older
Anne Arundel	427239	335660	253719	75.5880951	219835	65.49335637
Baltimore City	736014	69289	56201	81.11099886	48659	70.22615422
Baltimore County	692134	453816	354746	78.16956652	316376	69.71459799
Carroll	123372	106733	77495	72.60641039	68544	64.22006315
Harford	182132	132712	97908	73.77479052	86264	65.00090421
Howard	187328	167105	123087	73.6584782	108838	65.13150414
Total	2348219	1265315	963156	76.11985948	848516	67.05966498

| | Census Areas 60% Low and Moderate Income White | | | | | |
	Total Population	Total Selected Population	Total Selected Population 18 and Older	Percent Density of Selected Area 18 and Older	Total Selected Population 25 and Older	Percent Density of Selected Area 25 and Older
Anne Arundel	427239	1082	870	80.40665434	776	71.71903882
Baltimore City	736014	23121	17578	76.02612344	15394	66.58016522
Baltimore County	692134	8702	7554	86.80763043	3059	35.15283843
Carroll	123372	0	0	0	0	0
Harford	182132	481	386	80.24948025	340	70.68607069
Howard	187328	1677	1577	94.03697078	1277	76.14788312
Total	2348219	35063	27965	79.75643841	20846	59.45298463

Table 5

Table 6

Title: Summary Totals for Qualifying Census Block Groups

The following table was compiled with data obtained from the 1990 census, produced by the U.S. Department of Commerce and processed by Tri-County Council of Western Maryland.

This table is a summary report of information about the demographics of the selected census areas. Information contained in this report is broken by county and is totaled. The following is a list of the columns contained in this table:

Total households
Number of (Middle and Upper/Low and Moderate) income (Black/White) households
Percent of (Middle and Upper/Low and Moderate) income (Black/White) households
Total population
Number of people 25yrs or older
Percent of People 25yrs. or Older
Number/Percent of White/Black People Over 25 with More than a H.S. Diploma
Number/Percent of White/Black People Over 25 with a H.S. Diploma or Less

The source files for all of the columns above have been stated in previous descriptions except for education levels of people 25 and older. This data was taken from census summary tape file 310. The columns used to gain the shown information were p058001 through p058003, for high school diploma or less, and p0580004 through p0580007, for higher than high school.

Summary Totals for Qualifying Census Block Groups

Low and Moderate Income White Density 55%

	Total Households	Number of Lower Income White Households	Percent of Lower Income White Households	Total Population	Number of People 25yrs or Older	Percent of People 25yrs or Older	Number of White People Over 25 With More than a High School Diploma	Total Population in Census Block Group	Number of White People Over 25 With a High School Diploma or Less	Total Population in Census Block Group
Anne Arundel	471	312	66.24%	1082	776	71.72%	191	17.65%	616	56.93%
Baltimore City	14933	9412	63.03%	36533	23999	65.69%	4530	12.40%	18089	49.51%
Baltimore County	4380	2705	61.76%	13457	6209	46.14%	1371	10.19%	4464	33.17%
Carroll	488	271	55.53%	1036	729	70.37%	162	15.64%	490	47.30%
Harford	521	319	61.23%	1418	825	58.18%	218	15.37%	508	35.83%
Howard	288	241	83.68%	2001	1571	78.51%	313	15.64%	628	31.38%
Total	21081	13260	62.90%	55527	34109	61.43%	6785	12.22%	24795	44.65%

Middle and Upper Income White Density 55%

	Total Households	Number of Upper Income White Households	Percent of Upper Income White Households	Total Population	Number of People 25yrs or Older	Percent of People 25yrs or Older	Number of White People Over 25 With More than a High School Diploma	Total Population in Census Block Group	Number of White People Over 25 With a High School Diploma or Less	Total Population in Census Block Group
Anne Arundel	126155	95874	76.00%	357191	233940	65.49%	113744	31.84%	100755	28.21%
Baltimore City	44278	29354	66.29%	103999	74764	71.89%	35941	34.56%	35554	34.19%
Baltimore County	194398	142102	73.10%	507549	352780	69.51%	168565	33.21%	165231	32.55%
Carroll	38719	30225	78.06%	113232	72768	64.26%	32194	28.43%	39370	34.77%
Harford	51082	39163	76.67%	147206	94711	64.34%	47145	32.03%	42145	28.63%
Howard	62303	47826	76.76%	172744	112305	65.01%	70877	41.03%	25863	14.97%
Total	516935	384544	74.39%	1401921	941268	67.14%	468466	33.42%	408918	29.17%

Low and Moderate Income Black Density 55%

	Total Households	Number of Lower Income Black Households	Percent of Lower Income Black Households	Total Population	Number of People 25yrs or Older	Percent of People 25yrs or Older	Number of Black People Over 25 With More than a High School Diploma	Total Population in Census Block Group	Number of Black People Over 25 With a High School Diploma or Less	Total Population in Census Block Group
Anne Arundel	502	413	82.27%	1451	700	48.24%	45	3.10%	606	41.76%
Baltimore City	65153	46759	71.77%	185339	107397	57.79%	19532	10.51%	83408	44.88%
Baltimore County	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Carroll	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Harford	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Howard	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Total	65655	47172	71.85%	186790	108097	57.87%	19577	10.48%	84014	44.98%

Middle and Upper Income Black Density 55%

	Total Households	Number of Upper Income Black Households	Percent of Upper Income Black Households	Total Population	Number of People 25yrs or Older	Percent of People 25yrs or Older	Number of Black People Over 25 With More than a High School Diploma	Total Population in Census Block Group	Number of Black People Over 25 With a High School Diploma or Less	Total Population in Census Block Group
Anne Arundel	163	115	70.55%	1106	536	48.46%	95	17.72%	321	29.02%
Baltimore City	22935	14533	63.37%	70804	46005	64.98%	15368	21.70%	29150	41.17%
Baltimore County	7981	4943	61.93%	22261	13962	62.72%	5936	26.67%	5263	23.64%
Carroll	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Harford	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Howard	0	0	0.00%	0	0	0.00%	0	0.00%	0	0.00%
Total	31079	19591	63.04%	94171	60503	64.25%	21399	22.72%	34734	36.88%

Table 6

Table 7

        The following table was compiled with data obtained from the 1990 census, produced by the U.S. Department of Commerce and processed by Tri-County Council of Western Maryland.

        This table is a detailed report of information about the demographics of the selected census areas. Information contained in this report is broken down by CBG and is totaled by county. The following is a list of the columns contained in this table:

        Census Block Group Number
        Total Households
        Number of Lower/Upper Income White/Black Households
        Percent of Lower/Upper Income White/Black Households
        Total Population
        Number of People 25yrs. or Older
        Percent of People 25yrs. or Older
        Number of White Females 40yrs or Older
        Percent of White Females 40yrs or Older
        Number/Percent of White/Black People Over 25 with More than a H.S. Diploma
        Number/Percent of White/Black People Over 25 with a H.S. Diploma or Less

        The source files for all of the columns above have been stated in previous descriptions except for White/Black Females 40yrs. or Older. This data was taken from census summary tape file 302 columns p014b021 through p014b031 for white female and summary tape file 303 columns p014d021 through p014d031 for black females.

EXHIBIT E:
BALTIMORE METROPOLITAN COUNCIL LETTER

Baltimore Metropolitan Council

601 North Howard Street
Baltimore, Maryland 21201-4585

Telephone: (410) 333-1750
Facsimile: (410) 659-1260

Anne Arundel County
Baltimore City
Baltimore County
Carroll County
Harford County
Howard County

July 25, 1995

PAUL FARRAGUT
Executive Director

Patsy Baker Blackshear, Ph.D., Project Manager
AEI/TeleSonic
30 Old Solomon's Island Road
Annapolis, Maryland 21401

Dear Dr. Blackshear:

I am writing in response to your request for my professional assessment of the validity of your analysis of 1990 census data for counties in the Baltimore Primary Metropolitan Statistical Area. As Manager of the Demographic Information Services section of the Economic Research and Information Systems Division of the Baltimore Metropolitan Council (a U.S. Census Bureau State Data Center Affiliate), I have 20 years experience, college education, and training by the U.S. Census Bureau in the use of their data. The Baltimore Metropolitan Council (BMC) recently completed a household/travel survey for 3,000 households in the Baltimore Region in conjunction with Maritz Marketing, where I served as the Council's lead professional on evaluating the statistical sampling frame. I am directly responsible for developing socioeconomic estimates and long-range projections for over 600 geographic areas within the Baltimore Region which requires the development of methodologies for allocating these variables to disparate geographic statistical entities. I further work directly with the U.S. Census Bureau in developing statistical area designations for the Baltimore Region that are now used with their transportation statistics (Census Transportation Planning Package).

It is my understanding that the census areas identified and selected in your study design will receive randomly mailed information as part of a breast cancer research project conducted by AEI/TeleSonic under a research grant funded by the U.S. Department of the Army.

In my professional capacity as a planner and a college professor, I have reviewed the submitted research design, target test populations, data sources, and methodology for selection of census areas to be included in the tests. I can attest to the validity of the source data and support your approach in selecting census block groups for your research study. A block group is one of the elementary units of analysis for all Census Bureau data collection, validation and reporting. These block groups can be aggregated to larger geographic units such as census tracts, Minor Civil Divisions, and Census Designated Places. The block group is the lowest level for which census long-form questionnaire information (such as income, employment, disability, mobility, and etc.) is released. It is therefore a seminal unit of analysis.

Please let me know if I or the resources of the Council can assist you as you proceed with this important project.
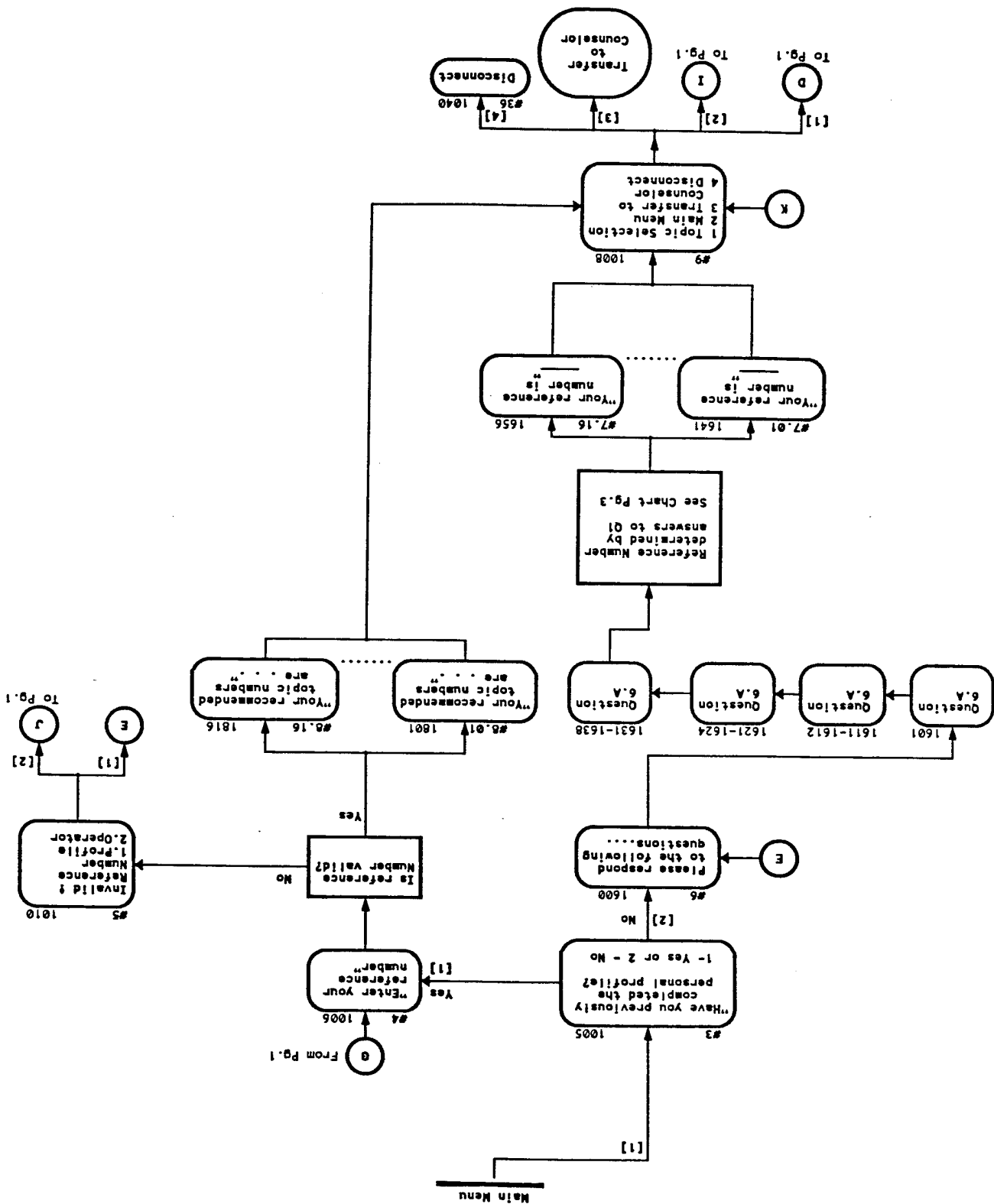
Sincerely,

Dunbar Brooks, Manager
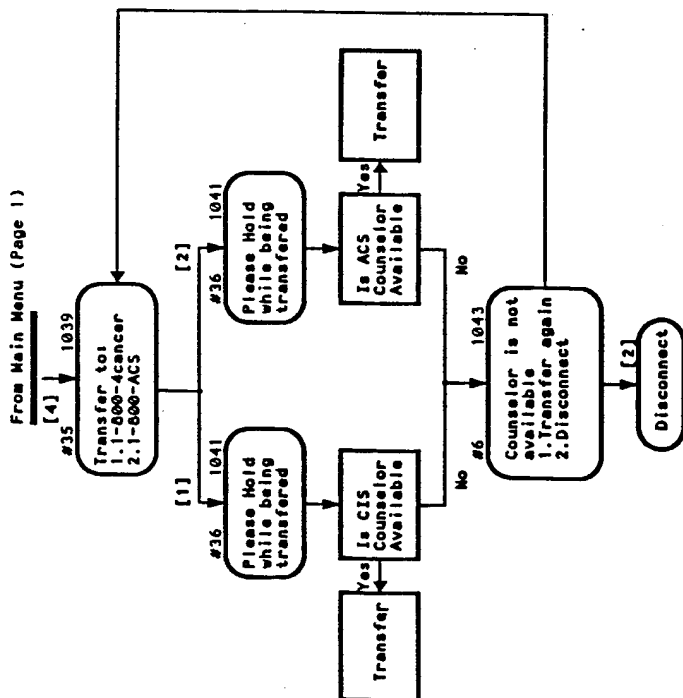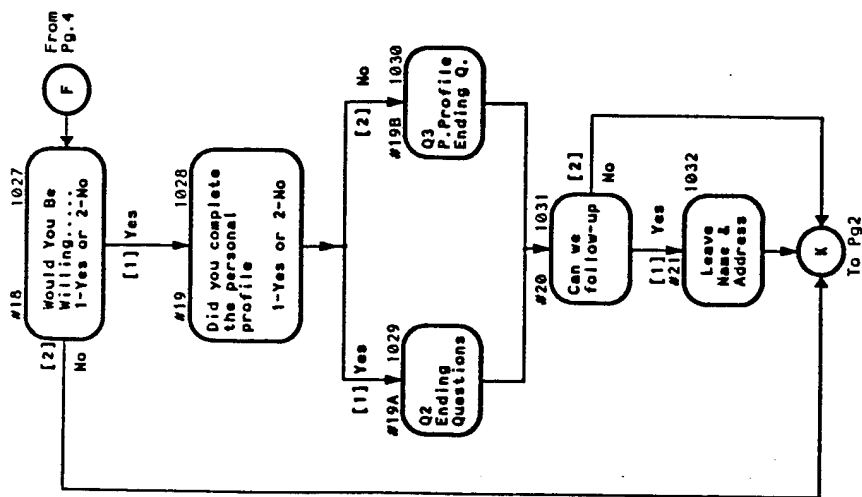Demographic Information Services
Baltimore Metropolitan Council

EXHIBIT F: AUTOMATED CALL FLOW

ARMY HEALTH

Automated Call Taker Call Flow
Includes "Maintenance Calls"
- 06/27/95-

□ = COMPUTER LOGIC

⬭ = MENUS AND PROMPTS

◯ = ACTIONS

See Transfer
to Live Counselor
Page 3

[4]

Stay on the Line ·········→ (J)

#36 1045
If touch
tone phone
press 1....

[1]

#1 1003
"Welcome"

1777
1.Return
2.Voice Mail
3.Disconnect

[2]
Voice
Mail
Menu

[3]
Disconnect

#2 1004
MAIN MENU
1.Personal Profil
2.Topic Selection
3.Operator Assist
4.Counselor

(I) From Pg.2

[3]

#33 1025
Operator is
not available
1.Leave a Message
2.Main Menu
3.Disconnect

[3] 1040
#35 Disconnect

[2] (I)

[1] 1026
#34 Operator
After Hours
Message Desk

1024
Dial
Operator?
Answer?   Yes → Operator

No

(J) From
Pg.1&2

#22 1017
1-If you know
your reference
number
2-For a list of
categories

[2]

#23 1018
Category
List 1-5
and
Selection

[1]
To
Pg.2 (G)

#24 1019
List of
Topics in
Categ. 1
1-Select
2-Other C

#28 1023
List of
Topics in
Categ. 5
1-Select
2-Other C

[2]

[2]

[1] (D)

[1]
See Personal
Profile.
Page2

#10 1011
"Are you a first
time caller?"
1 - Yes or 2 - No

[2]

No [2]
1012
Data
Capture

[1] Yes
1013
Data
Capture

#11 1014
"Do you have a
list of topics"
1- Yes or 2 - No

[2]No

[1]Yes

#12 1015
"Enter a
topic
number"

(D) From
Pg.1&2

"Is mess.
number
invalid?"

No

#13 1016
Invalid
message
number !
Transfer to
Operator → (J)

Yes
Play messages
See message flows
pages 4 & 5

ARMY HEALTH
Call Flow
-CMS 05/02/95-
Page 3

From Pg.4

F

#18   1027
Would You Be Willing.....
1-Yes or 2-No

[2] No

[1] Yes

#19   1028
Did you complete the personal profile
1-Yes or 2-No

[1] Yes   #19A   1029
Q2 Ending Questions

[2] No   #19B   1030
Q3 P.Profile Ending Q.

#20   1031
Can we follow-up

[1] Yes   #21   1032
Leave Name & Address

[2] No

K

To Pg2

From Main Menu (Page 1)

[4]   #35   1039
Transfer to:
1.1-800-4cancer
2.1-800-ACS

[1]   #36   1041
Please Hold while being transferred

Yes   Is CIS Counselor Available   No

Transfer

[2]   #36   1041
Please Hold while being transferred

Is ACS Counselor Available

Yes   Transfer

No

#6   1043
Counselor is not available
1.Transfer again
2.Disconnect

[2]   Disconnect

Personal Profile Module

Female								No Female							
Family History				No Family History				Family History				No Family History			
Breast Exam		No Breast Exam		Breast Exam		No Breast Exam		Breast Exam		No Breast Exam		Breast Exam		No Breast Exam	
Cancer	No Cancer	Cancer	No Cancer	Cancer	No Cancer	Cancer	No Cancer	Cancer	No Cancer	Cancer	No Cancer	Cancer	No Cancer	Cancer	No Cancer
R.N.1	R.N.2	R.N.3	R.N.4	R.N.5	R.N.6	R.N.7	R.N.8	R.N.9	R.N.10	R.N.11	R.N.12	R.N.13	R.N.14	R.N.15	R.N.16

ARMY HEALTH
Call Flow
Topic Messages (From Pg1)
- 05/02/95-
Page 4

MESSAGE 1001
"What is Breast Cancer?"
→ 1101 Play Topic Message → #14 1036 Disclaimer → F To Pg.3
(L)

MESSAGE 1002
"Breast Cancer is Curable"
→ 1102 Play Topic Message → (L)

MESSAGE 1003
"Breast Cancer myths?"
→ 1103 Play Topic Message → (L)

MESSAGE 1004
"Every breast lump or pain is not cancer"
1104 Play Topic Message → (L)

MESSAGE 1005
"Breast cancer and African American"
1105 Play Topic Message → (L)

MESSAGE 1006
"Men, you can get breast cancer too"
1106 Play Topic Message → (L)

MESSAGE 1007
"Are you at risk for getting breast cancer?"
1107 Play Topic Message → #29 1117 Risk factors.
1.Risk factors.
2.Are you taking the pill...
3.Lifestyle risk
[1] 1171 Sub Message 1071
[2] 1172 Sub Message 1072
[3] 1173 Sub Message 1073
→ (L)

MESSAGE 1008
"Lower your risk for getting breast cancer?"
1108 Play Topic Message → #30 1118 Role of Diet
1.Role of Diet
2.Exercise Role.
[1] 1181 Sub Message 1081
[2] 1182 Sub Message 1082
→ (L)

MESSAGE 1009
"Breast examination"
1109 Play Topic Message → #14 1191 Disclaimer → #15 1192
1-Request by Mail
2-Request by fax
3-Continue
[1] #16 1193 Leave name and address → Record caller info.
[2] #17A 1194 Confirm Fax → Set-up fax del. FAX1194
[3]
→ (L)

ARMY HEALTH
Call Flow
Topic Messages(From Pg1)
- 05/02/95-
Page 5

MESSAGE 1013
"There is life after breast cancer"

1113 → Play topic message → L To Pg.4

MESSAGE 1014
"Community Bulletin Board"

1114 → Play Topic Message → #14 1401 Disclaimer → #15 1402 1-Request by Mail 2-Request by Fax 3-Continue

[2] 1404 Fax Confirmation → #17C Set Up Fax Deliv FAX1404

[1] 1403 #16 Leave Name and Address → Record Caller Info

→ F To Pg.3

MESSAGE 1012
"How can breast cancer be treated"

1112 → Play Topic Message → #32 1122 1.Surgery 2.Treatments 3.Research

[3] 1203 Sub Message 1123

[2] 1202 Sub Message 1122

[1] 1201 Sub Message 1121

#14 1214 Disclaimer → F To Pg3

MESSAGE 1015
"How should I support a friend or relative"

1115 → Play topic message → L To Pg.4

MESSAGE 1011
"Where do I get more information"

1111 → Play topic message → L To Pg.4

MESSAGE 1010
"All about mamograms"

1110 → Play Topic Message → #31 1120 1.When to get a M 2.Where ?

[2] 1126 # → Sub Message 1102 → #14 1127 Disclaimer → #15 1128 1-Request by Mail 2-Request by Fax 3-Continue

[2] 1130 Fax Confirmation → #17B Set up fax delivery. FAX1130

[1] 1129 #16 Leave Name and Address → Record Caller Info

[3] → F To Pg.3

[1] # 1121 → Sub Message 1101 → L

EXHIBIT G: LIVE CALL FLOW

Army Health
Call Flow 06/27/95
Live Call Taker
Includes "Maintenance" calls.

```
#1      5036                                          5777        [2]    ┌─────────┐
┌──────────────┐        [7]                         ┌──────────────┐    │ Voice   │
│              │ ┄┄┄┄┄┄┄┄┄┄┄┄┐                      │ 1.Return     │───▶│ Mail    │
│  Welcome!    │◀─────────────┤                      │ 2.Voice Mail │    │ Menu    │
│              │              ┆                      │ 3.Disconnect │    └─────────┘
└──────────────┘              ┆           [1]        └──────────────┘
        │                     └┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄              │
        ▼                                                      │       [3]   ┌──────────────┐
#7      5045                                                   └────────────▶│ Disconnect   │
┌──────────────┐                                                             └──────────────┘
│ 1.Touch Tone │
│ or stay on   │
│ the line     │
└──────────────┘
        │      [1]
        │        │
        ▼        ▼
#8    5046     #2      5037            [2]
┌──────────┐  ┌──────────────┐────────────┐
│ Pre      │  │ 1.Leave Inform.           │
│ transfer │  │   before transfer         │
│ message  │  │ 2.Transfer   │            │
└──────────┘  └──────────────┘            │
     │            │   [1]                 │
     │            ▼                        ▼
     │        #3      5038          #4           5039
     │        ┌──────────────┐    ┌──────────────────┐
     │        │ Please leave │───▶│ 1.1-800-4CANCER  │◀────────┐
     │        │ Name and Add.│    │ 2.1-800-ACS2348  │         │
     │        └──────────────┘    └──────────────────┘         │
     │                                    │                     │
     │                          ┌─────────┴─────────┐           │
     │                        [1]                   [2]         │
     │                          ▼                     ▼         │
     │        #5      5041                  #5      5042        │
     │        ┌──────────────┐            ┌──────────────┐      │
     └───────▶│ Please Hold  │            │ Please Hold  │      │
              │ while you're │            │ while you're │      │
              │ being        │            │ being        │      │
              │ transfered   │            │ transfered   │      │
              └──────────────┘            └──────────────┘      │
                     │                           │              │
                     ▼                           ▼              │
┌──────────┐  ┌──────────┐  Yes       Yes  ┌──────────┐  ┌──────────┐
│ Transfer │◀─│ Is CIS   │           │ Is ACS   │─▶│ Transfer │
│          │  │ line busy│           │ line busy│  │          │
└──────────┘  └──────────┘           └──────────┘  └──────────┘
                   │                       │
                  No                      No
                   └──────────┬───────────┘
                              ▼
                   #6      5043
                   ┌──────────────┐
                   │ Line is busy │      [1]
                   │              │──────────────┐ (to #4 5039)
                   │ 1.Try again  │
                   │ 2.Disconnect │
                   └──────────────┘
                          │  [2]   5044
                          ▼
                   ┌──────────────┐
                   │ Disconnect   │
                   └──────────────┘
```

EXHIBIT H:
FIRST FOCUS GROUP SERIES

P.R & Marketing, Inc.

Focus Group Analysis On
Breast Cancer

Prepared For

Associated Enterprises, Inc/
TeleSonic

Prepared By

P.R & Marketing, Inc.
410-757-1111

Final Report on Focus Group 1

Date: March 9, 1995

Location: YWCA of Greater Baltimore
      128 W. Franklin Street
        Baltimore MD

Moderator: Al Boswell

Participants: Nine women living in the homeless shelter were participants. Ages ranged from early 20's to 60.

SES Group: Eight African American Low–Middle Income - One white

1. Why did you offer to participate in a discussion on breast cancer?
A   "Have not had a mammogram"
B   "(Interested in) What it was about"
C   "I am learning from group ways to reach people"
D   "Mother died of breast cancer—I know I need to have a mammogram—I am a recovered addict".
E   "I am an addict—Need more information about mammograms"
F   "I have a family history of cancer (related) deaths—I have had a health exam (recently) but not a mammogram"
G   "My sister died of Breast Cancer—I am afraid"
H   "I am too busy to get a mammogram"

SUMMARY
The above quotes are just part of the picture. During these comments people were shaking their heads affirmatively and making other gestures of agreement. These actions can be summarized as follows: Many responded that they needed more information about breast cancer and mammograms. Most of the participants recognized the fact that mammograms were necessary, although few if any had had one recently or ever.

2. What is your attitude toward breast cancer?
A   "I fear because my father died of pancreatic cancer"
B   "Fear—I block it out"
C   "I am scared—I stayed with my grandmother when she died (of cancer)"
D   "I am scared—I do not want to die"
E   "I am very frightened—my mother died of cancer"
F   "I am older and have a greater chance (of getting breast cancer)—I want to know more" (respondent an older women)

G   "I work with patients with cancer—make people more comfortable"

H   "No cancer in my family, if I have it, I do not want to know–I would
be concerned about physical disfigurement not being whole—I would want to
die"

SUMMARY

Breast Cancer is not necessarily a message that everyone wants to hear about—even
though they know it is a life or death matter. The overwhelming response was fear. A
few said that they responded to the fear by blocking out thoughts of cancer (and
presumably, cancer prevention). Two said that if they have breast cancer, they don't
want to know. One respondent said that she would rather die than be physically
disfigured by breast cancer surgery. All of this shows resistance to the message.

**3. Why do you suppose breast cancer deaths have risen 18% in the last 20 years in
African American women of all ages?**

A   "(People) Don't get treatment "

B   "Availability for treatment—I am too busy—no money—I work too late. I don't
think people have enough time for themselves"

C   "How much do mammograms cost—No money?"

D   "I have no insurance, no transportation"

E   "I do self breast exams enough, but I need a mammogram"

SUMMARY

Several responses centered upon the fact that it was difficult or impossible to get a
mammogram. Reasons included: Lack of time, lack of transportation, lack of access to
mammograms. Three respondents mentioned a lack of money or insurance. In this
social–economic group, a lack of resources seems to be a strong deterrent to getting
breast cancer testing and examination.

**4. Deaths related to cancer can be greatly reduced through eating right, not smoking,
finding cancer early. What would be the best thing to say to women to get them to do
these things?**

A   "More advertising is needed on early detection"

B   "The message must be repeated enough to be effective"

A   "Equal to no smoking (campaign)"

C   "People don't change what they do"

D   "(People) hear message but don't believe it will happen to them"

E   "Give (woman) hope— if treatment is early"

E   "Benefit—if you find you have breast cancer—then what?"
F   "Some with hysterectomy's"
G   "Change in treatment—over surgery"
H   "Some Black woman don't seek health care because they don't have money"
I   "We (Black woman) would only go to a doctors if it was an emergency"
J   "Rural area—Two hours to (a) treatment (facility)"

SUMMARY

The responses were varied:
o Give hope
o Repeat messages
o It *can* happen to you
o Tell them how treatments have progressed.

5. Which topic about breast cancer would you listen to:
(respondents asked to pick only one)
A   Breast Cancer and African–American women?   2
B   Do genetics and family history play a role in breast cancer? 2
C   Breast cancer, the pill and menopause? 2
D   How to lower your risk of breast cancer? 4

SUMMARY

The lower your risk question received twice the amount of votes than any other selection. The remaining questions were evenly divided.

6. Are there any topics you might want to learn about cancer that you feel would get your attention if you heard about it through the media?
A   "I would want to hear about the treatments and prognoses at each stage of cancer"
B   "A doctor on (cable) T.V. can explain (all about breast cancer)"
C   "I would listen to information about beauty and exercise but not breast cancer"
D   "I might listen out of curiosity"
E   "Why do woman catch breast cancer?"
F   "I think people should telemarket with free mammograms"
G   "Woman won't go to doctors or gynecologist because they're scared"

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SUMMARY
Misunderstanding and fear permeate these responses. These responses reinforce the unpleasantness of the subject matter. The free mammogram once again appears as a suggestion to enhance results.

7. How many people would watch a 20 minute program on breast cancer?
A   "Yes" (9), "No response"   (1)

SUMMARY
This strong affirmative response speaks to the power of television. It seems that it would be an excellent media to explore for future reference. Also video cassettes on breast cancer might be offered.

8. Have you received any information about breast cancer in the last several years?
A   "Yes, mammograms and surgery. (Side comment:) Removing breast is ugly—I want to feel whole"
B   "I think there should be support groups after breast removal—(I am) afraid of disfigurement"
C   "I have not had any information"
D   "I have seen PSA's on the T.V."
E   "I have seen PSA's also"
F   "I have seen literature at the clinic"

SUMMARY
It is significant how many people (all but one) have gotten the message about breast cancer and the importance of getting mammograms. It must be noted that these are considered to be *hard to reach* women (they are in a shelter).

9. From which source would you rather learn about breast cancer?
A   "A doctor"   (6)
B   "A magazine" (1)

SUMMARY
Certainly hearing about breast cancer from your physician is more personal and appealing than a magazine. These types of questions are important to ask because many times the responses are opposite of our expectations.

10. Do you read all of the direct mail that comes to you?
A   "No" (10), "Yes" (0)

11. Do you remember a direct mail piece that recently got your attention?
A   "Send money for the hungry" (two responded by this statement)
B   "I read a piece about cancer"

12. Which type of direct mail approach do you like best? How would you design a breast cancer mailer to get attention?
A   "If it had food flyers with it (I would respond)"
B   "A message like—Want to be around for your children?"
C   "Bright colors"

SUMMARY
The entire group agreed that they would be more likely to read something if the colors were bright and exciting. They also stated that they would not bother to open something—so a postcard was suggested as a solution. From a message standpoint, two mentioned the fact that mothers need to be around (alive) for their children (Don't just do it for yourself).

Others mentioned the inclusion of incentive gifts such as lotto tickets, CDS, night lights. The lotto ticket idea stimulated discussions centering around a potential gambling theme.

13. Would you listen to information from a celebrity?
A   "Yes" (6 out of 10)

SUMMARY
It was stated that a hunky, sexy man would be a more appealing spokesperson to women (most agreed) than a woman. It was also said that it didn't matter whether the spokesperson was black or white—just sexy.   One might ascertain from this discussion that using sex appeal in the ad would increase the results (as we know, this is true of most advertising). Two celebrities were suggested: Ann Jillian (who had breast cancer) and Montel Williams (whose father is the Baltimore Fire Department Commissioner). Montel Williams has also had breast cancer.

C. COMMENTS
A   "It is hard to reach people (with information)"
B   "We can beat this thing with support"
C   "Think about living—you can prevent breast cancer"
D   "We want to see our children grow up"

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Responses strongly suggest that fear of cancer is already very much in place. It is possible that news reports and marketing pieces designed to inform of the dangers of breast cancer or get people's attention by creating fear reinforce existing fears, leading people to ignore the unpleasant news. Accordingly, this suggests that a piece which offers a positive message of hope (of survival, of treatment without disfigurement) would be more likely to get people's attention and prompt them to take preventative action.

The primary issue here (question #3 'Why do you suppose breast cancer has risen 18% in African American woman of all ages') is that there are ways of overcoming most of these considerations. Low, or no– cost mammograms are available but not widely known or utilized by this target group. Many women who do not have ready access to transportation may have mammogram facilities within walking distance. They may just need to know where these services are located.

We need to be careful not to read too much into this question(question #5 'Which topic about breast cancer would you listen to') since respondents were asked to respond to only one topic. It is very likely that they would listen to more than one topic, given the opportunity. That said, it would probably be unwise to emphasize any of the topics which drew no response.

While most had received information, few or none had regular mammograms.Obviously, the information did not translate into action.

The free lotto ticket is very interesting. Many in this SES group said they play the lotto. It would certainly get people to open the envelope. It would also tie in extremely well with the breast cancer theme, i.e.– *"Don't Gamble with Breast Cancer"* or *"Breast Cancer–It Could Happen to You."* It may be possible to get lotto tickets donated or sold at a reduced rate.

The good news here (question #4 'Deaths related to cancer can be greatly reduced through eating right, not smoking, finding cancer early. What would be the best thing to say to woman to get them to do these things') is that the participants seem generally aware of the dangers of breast cancer and the need for mammograms. These people have much less access to general media such as television, radio, and print, yet they are fortunately more aware of breast cancer than might be expected. This suggests that marketing pieces might not need to educate recipients completely. Instead, it can reinforce basic knowledge and build on it in a persuasive manner.

It is also worth noting that two of the nine participants lost immediate family members to breast cancer and two others have lost family members to other forms of cancer. These people have seen what cancer does, not only to its victims but to the people around them. It is probable that others in the group have also had close family members or friends die of cancer but did not discuss it in the group. This may also provide a persuasive angle for marketing materials.

Final Report on Focus Group 2

Date: March 11, 1995

Location: Private home
            Annapolis MD

Moderator: Al Boswell

Participants: Six professional women participated. Age range from 30 to 75.

SES Group: Upper–Middle Income, African–American

1. Why did you offer to participate in a discussion on breast cancer?

A   "My sister was treated for breast cancer"

B   "I have a busy lifestyle (like other women who work)—too busy to keep up with health"

C   "I am concerned about getting breast cancer—women die"

SUMMARY

People mainly came because they felt they needed to come because of the risk. The 'B' statement above is a strong commentary about today's woman and the hectic lifestyle thereby associated—especially since most women now work outside of the home it makes getting mammogram's, in many cases, a more difficult task to schedule. It is important to educate people to set priorities especially on life and death issues such as breast cancer. A possible direction might be in the following concept: *The woman of the 90's understands the importance of getting a mammogram.*

2. What is your attitude toward breast cancer?

A.   "I have not had much exposure to breast cancer—(I) have had a mammogram"

B.   "As a physician, I encourage prevention"

C.   "I am aware of preventive measures"

D.   "I am aware because someone close to me died from breast cancer. I ask for mammograms and do self exams. I believe that people are afraid of the unknown."

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SUMMARY
Most people participating in this group had immediate family members or friends who have or who currently have breast cancer. Several mentioned the need for some kind of support system to prompt people to action and remain with them throughout the care process. It is interesting to note that the responses were from *without* and not from *within*. For example what might have been a more personal approach: (B) As a physician I always take preventative measures (C) Since I am aware of preventive measures I take all necessary precautions. It may be interpreted that the subject is too painful to discuss so close to home. The (D) statement was the only exception and it even stated the *fear of the unknown*.

3. Why do you suppose breast cancer deaths have risen 18% in the last 20 years in African American women of all ages?

A.   "Preventive measures not taken"

B.   "In black community, other things on minds—eating—other than medical issues. Maybe not a money issue as much as the frequency issue"

C.   "Priorities—must be directly given. My mom and grandmother were not health conscious"

D.   "Maybe cancer has increased in area. Hard to reach people one to one. A poor person has to make an effort to get tested. It is going to be painful fighting against the odds. "Talk directly "

E.   "Fear of loosing a breast (disfigurement)"

SUMMARY
There is a history of lack of health care and prevention that permeates the black community. Other issues have taken a priority. Economic issues have an impact on whether people are able to get tested/treated.

4. Deaths related to cancer can be greatly reduced through eating right, not smoking, finding cancer early. What would be the best thing to say to women to get them to do these things?

A.   "(Avoid) statistics (since they) are frightening"

B.   "People think it's not going to happen to them (first convince them that it could happen to them)"

C.   "Say positive things—what are you going to do after diagnosis?. you can live with it."

D.   "Could see support groups"

E.   "Show women who have caught cancer—(and survived)"

F.   "Do a dramatic visual: *"Can prevent"* approach"

G.   "(People have) perception of the end"

H.   "Stores should offer services that cater to women who have had   breasts removed, i.e. Norstroms and Hechts Company."

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SUMMARY
We prompted a diversity of opinions on this question. But upon careful review the most overwhelming undercurrent message is of *hope:* positive, prevention is possible, support groups exist, help for after breast cancer with support groups and physical aids that help with the breast loss. Thus we might conclude that a message with hope would be well received.

5. Which is better to tell people about:
> 1. Facts about Breast Cancer deaths
> 2. Ways to help lessen the risks of Breast Cancer
> 3. Other?

A.   "Both 1 & 2—People with lower reading levels might relate to a comic (style) series—Visuals with words, draw pictures—with colors bright enough (to get attention)"

B.   "You may get breast cancer. Start by telling people about positive things and then the negatives—negatives can turn people off. Get tested and show living pictures of women that have survived"

C.   "Diagnosed with cancer, play up success stories"

6. What topic about breast cancer are you most interested in learning about?

A.	What is breast cancer?	0
B.	Breast cancer and African American woman?	0
C.	Are you at risk of getting breast cancer?	0
D.	Do genetics and family history play a role in breast cancer?	3
E.	Breast cancer, the pill and menopause?	0
F.	Your lifestyle and how it effects breast cancer?	0
G.	How to lower your risk of breast cancer?	3
H.	How can breast cancer be treated?	0

SUMMARY
It is significant that a broader range of interest was not established in this group. Interest in family history has been prompted by previous cancer campaigns and may have done more harm than good since the non–family history of cancer is approximately 80% of the cases reported. Item (g) on ' *how to lower your risk of breast cancer* ' is a positive message and basically gets to the bottom line. Even though two questions in this list received equal response, the ' *lower your risk* ' topic relates to the entire target market population we are approaching and thus would be a more impacting message to communicate.

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7. Are there any topics you might want to learn about cancer that you feel would get your attention if you heard about it through the media?

A	"Routine Exams—see a doctor"
B	"Free exams available or at a reduced cost"
C	"Income should not stop you from getting a mammogram"
D	"Do you have mammogram's?"
E	"Do you check your breasts (self exam)?"
F	"Use curiosity approach"
G	"How to lower risks"
H	"Offer free information to help lower risks"
I	"How would you state ways to reduce breast cancer?"
J	"Inside—must be easy, no small print"
K	"Colorful!"
L	"Emphasize important words"
M	"Select good color, such as: *goldenrod, neon pink, flower, reds & blues*"
N	"Reduce or lesson amount of information—(make) easy to understand"

SUMMARY
The Message: Lower your risks for getting breast cancer by: doing self exams, going to doctor, and getting mammogram's regularly.
The Layout: Use bright colors, avoid too much information and small print, emphasize important words.

8. Have you received any information about breast cancer in the last several years? If yes, where?

A	"From the Doctor" (5)
B	"From Church" (1)
C	"From Health Fairs" (1)

9. From which source would you rather learn about breast cancer?

A	Advertising (2)
B	News Media (4)
C	Your Dr. (3)
D	Health Organization (3)
E	Other (0)

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SUMMARY
This group had a wide diversity of options for gaining information. Not strong enough to be conclusive. It makes our job of reaching this particular audience easier since they consider all the mentioned sources as credible for medical information.

10. Do you read all of the direct mail that comes to you?
No one reads it all was the overwhelming response. This question is intended more to stimulate response to the questions that follow.

11. Do you remember a direct mail piece recently that got your attention? What stood out?
A   "Yes. If colorful and free gift (offered)—coupon for reduced rate for mammogram"
B   "Color—texture—smooth—glossy—reduced or free mammogram—free cosmetics"
C   "Size of envelope should be oversized—like invitation—pretty silhouettes"

SUMMARY
We had few responses but they are extremely significant to our end direct mail design. Once again we are told to make it colorful. In addition offering a free gift would enhance response (true of most direct mail advertising). Offering a coupon or reduced rate for mammograms would expect to increase success with our campaign but may not be feasible, emphasizing where to get free or reduced cost mammograms might be more practical. The last item of significance was to use an over–sized envelope. These are helpful comments that will be further considered.

12. Which type of direct mail approach do you like best?
A   Coupons enclosed (2)
B   Free gift enclosed (1)
C   Neither

13. How would you design a breast cancer mailer to get attention?
A   "Color, and place a question on the outside of the envelopes"
B   "Theme idea—Do you want to gamble with your life?"
C   "Personalized envelope"
D   "Show a woman on front—free gift—personalize—health information enclosed"
E   "Coupon—free pedicure to pamper women"

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14. Have you ever called an information line? Did you find if helpful? Why?

A   "All the Information must be concise—want quick and easy solutions"

B   "I would relate better to a female voice—one who seems concerned"

C   "The service should have no more than 5 topics—getting away from personal touch"

D   "Upbeat voice—informative—would need to be a female—how to obtain information"

15. Would you be more inclined to listen to a celebrity?

A   "No, just a regular person—have a black and white woman"

16. Would it be better to have a woman or a man celebrity to tell the message?

A   "With such a personal subject, a woman would be better—more sensitive."

17. What would you like to share with us regarding reaching black women about breast cancer?

A   "Lot of black women are not concerned about their bodies health do not go to the doctor unless they feel a pain—preventive difficult, Cuts in government (funding are) going to be different—teenagers should have to be checked"

B   "Get into habit of breast exam"

C   "Talk with mother, want to prevent disease"

D   "Tie in with mother"

Report on Focus Group 3

Date: March 15, 1995

Location: Navy Family Service Center
        Annapolis MD

Moderator: Al Boswell

Participants: Twelve women civilian employees participated. Ages ranged from early 20's to 40.

SES Group: Low–Middle Income, Racially Mixed (approx. 50/50)

1. Why did you offer to participate in a discussion on breast cancer?
A   "Cancer is scary, I need better information" (mother had cancer)
B   "I want to learn more about breast cancer"
C   "I want more information—how is it detected?"
D   "How do you prevent it?"
E   "I get a regular mammogram" (two responded)
F   "I had breast cancer found by a mammogram, I used to have a mammogram every two years now I have one every eighteen months"

SUMMARY
Two respondents said that they had family histories of cancer. Several said that they wanted to know more about breast cancer, detection, and prevention. Several do get regular mammograms. One participant has had breast cancer found by a mammogram. She use to have a mammogram every two years, now every eighteen months.

2. What is your attitude toward breast cancer?
A   "I think it is scary—Don't like all that medical stuff—makes me uncomfortable"
B   "Can I get treatment if I am going to die?"
C   "I'm not fearful—I refuse to have cancer—belief in programs"
D   "I don't worry about it—It has never been in my family"
E   "I had a lump in my breast—I was scared of the pain, suffering and the treatment"
F   "Everybody should have a checkup—it must be confronted"

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SUMMARY
Fear was by far the most frequent response. Some respondents have had family members or friends die of breast cancer. Some are afraid of the treatment (disfigurement). One of the results of this fear is that many people try not to think about it. One participant mentioned that she was not worried because no one in her family has had breast cancer.

3. Why do you suppose breast cancer deaths have risen 18% in the last 20 years in African American women of all ages?
A   "I don't' go to the doctors—in general"
B   "I know I'm supposed to get an exam but the cost keeps going up"
C   "I'm afraid to find out—and it's too expensive"
D   "I don't want exams"
E   "I cannot afford it"
F   "I don't want to take time off—(I'd) rather put it off"

SUMMARY
Several responded that women just don't want to get exams, although there are no real barriers. They are simply lackadaisical about it or are scared to learn the results. Some responded that some women cannot afford the exams.

4. What would be the best thing to say to women to get them to do these things?
A   "Talk Shows" (with information)
B   "I am motivated by scare tactics" (two)
C   "If there was some good news about breast cancer, I might do something about it" (get an exam)

SUMMARY
Several mentioned that people are motivated by scare tactics. One suggested that maybe if people hear some good news they might act.

5. Which is better to tell people about:
            1. Facts about breast cancer deaths.
            2. Ways to help lessen the risks of breast cancer. (all responded)
            3. Other?

SUMMARY
Once again we have support for informing people with the message of reducing risks for getting breast cancer.

6. Which topic about breast cancer would you listen to:

A	What is breast cancer?	1
B	Breast Cancer and African–American women?	3
C	Are you at risk of getting breast cancer?	1
D	Do genetics and family history play a role in breast cancer?	1
E	Breast cancer, the pill and menopause?	0
F	Your lifestyle and how it affects breast cancer?	0
G	How to lower your risk of breast cancer?	5
H	How can breast cancer be treated?	0

SUMMARY

Two responses drew the attention of this group. The first was (b) breast cancer and African–American women. Since 50% of those participating were black women, it is understandable that they would have a vested interest in that question. The second was the (g) question on how to lower risk of breast cancer and this received the majority of responses. Our pattern is again reinforced in a positive message of what women can do to deal with breast cancer as effectively as possible.

7. Are there any topics you might want to learn about cancer that you feel would get your attention if you heard about it through the media?

A	"I want to hear more about the research"
B	"Make woman more aware of cancer illnesses—women tend to be quiet"
C	"Does Fibrosis disease lead to breast cancer?" (two)
D	"Ovarian cancer—PSA"

SUMMARY

One woman said that she wanted to hear more about research.
Ovarian Cancer. Fibrosis disease. Will it lead to breast cancer?
Two people in the group had this disease.

8. Have you received any information about breast cancer in the last several years?

SUMMARY

One woman said she had received something from a cancer support group in Pasadena.

9. From which source would you rather learn about breast cancer?

A	A friend	0
B	Radio Ad	0
C	Direct Mail Pieces	1
D	Newspaper	0
E	Magazine	0
F	Doctor	2
G	Church	0
H	Other	Peers

SUMMARY

Not much response was offered to this question. However two participants said that a doctor would be there preferred choice. This is ideal at best since people have so little time with doctors. It is good to see direct mail getting a vote of support.

10. Do you read all of the direct mail that comes to you?

None read all of it. Some read none of it.

11. How would you design a breast cancer mailer to get attention?

A   "It can happen to you—give source of information on breast cancer—study groups"

B   "Anything about breast cancer—Positive and negative sides— in a newsletter"

C   "Identify breast cancer and African American woman"

D   "I would open it—if it was a reliable source" (insurance company)

E   "(Show) Where I can get more information"

F   "Make it about prevention"

SUMMARY

Some responded that a message on the envelope might get their attention. One opens it if it is from a reliable source (insurance company) One mentioned that she likes newsletters. One wanted to see where she could get more information. One wanted the message to be about prevention. One suggestion was case studies showing positive and negative. One said that if it specified information about black women and breast cancer, she would be interested. A couple said that a gift inside makes no difference. Make it personal.

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C. COMMENTS

Many people have seen for themselves what breast cancer can do. Others have not but still have great fear. To compound that fear with more scary information may be an unsuccessful way of getting people's attention, since many block out this type of scary information. A more successful approach might be to offer hope.

There are still misconceptions, such as the belief that there is little or no risk without a family history. This might be addressed in some way.

The fact that the most responded to "How can you lower your risk" suggests that they may be more responsive to a hopeful message. It may also suggest that information is already more prevalently available about the effects and treatment of breast cancer than about its prevention.

The second most popular topic was "Breast cancer and African American women" This suggests that the more we personalize the message to the recipient, the more interested they might be.

Report on Focus Group 4

Date: March 16, 1995

Location: Holiday Inn
          Annapolis MD

Moderator: Al Boswell

Participants: Eight professional women members of Zontas. Ages ranged from 20's to 50's.

SES Group: Upper–Middle Income, White

1. What is your attitude toward breast cancer?

A   "I think heavier women are more apt to get breast cancer"

B   "I'm in the group that is a higher risk" (older woman)

C   "I resent the fact that doctors tell you to get a mammogram every year, but Medicare only pays for it every two years"

SUMMARY

Three participants used the words: "fear," "concern," and "panic."
Three participants had immediate family members (with cancer)
Nearly all of the participants have annual mammograms.
One participant said that she resented the fact that doctors say to get annual mammograms, because Medicare only pays for it every two years.

2. Why do you suppose breast cancer deaths have risen 18% in the last 20 years in African American women of all ages?

SUMMARY

Some felt that the rate of incidence may not have increased by 18%, the rate of detection has. People are living long enough to die from breast cancer now.

Some felt that the environment and the chemicals in our diet have increased the risk.

One participant was particularly interested in local patterns. She knows that Maryland has a high cancer incidence rate and wants to know if that includes breast cancer and how does A.A. County stack up in particular.

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3. Deaths related to cancer can be greatly reduced through eating right, not smoking, finding cancer early. What would be the best thing to say to women to get them to do these things?

SUMMARY
If a woman feels **empowered,** she will be more likely to act.
It is important to know that breast cancer is not an automatic death sentence and that each individual woman has a lot of control over whether or not she will get it and how it will affect her. Using well– known people who have had breast cancer might be effective. The entire group seemed to know about Ann Jillian. They thought it was significant that she had a mastectomy and then had children.

4. Which topic about breast cancer would you listen to?:

A	What is breast cancer?	0
B	Breast Cancer and African–American women? (All–white panel)	0
C	Are you at risk of getting breast cancer?	1
D	Do genetics and family history play a role in breast cancer?	0
E	Breast cancer, the pill and menopause?	2
F	Your lifestyle and how it affects breast cancer?	2
G	How to lower your risk of breast cancer?	0
H	How can breast cancer be treated?	3

SUMMARY
This group did not select "How to lower your risk of breast cancer" but instead: "How can breast cancer be treated?" question (F) is similar to (G). Question (F) is a positive message.

5. Are there any topics you might want to learn about cancer that you feel would get your attention if you heard about it through the media?

SUMMARY
"Success Stories"
Research – "I'd like to know that someone out there is working on something"
"Something on a personal level" — "This is something that might kill **me**"
"I don't care so much about globally"

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6. Have you received any information about breast cancer in the last several years?, If yes, where?

A	Advertising:	0
B	News media:	0
C	Your doctor:	0
D	Health Organization:	4 (AA Hospital, Health Department Presentation)
E	Other: Husband brought back literature from a seminar	

7. From which source would you rather learn about breast cancer?

A	A friend	0
B	Radio Ad	1
C	A direct mail piece	0
D	The newspaper	1
E	A magazine	2
F	Your doctor	4
G	Church	0
H	Other	0

SUMMARY
The question (F) 'your doctor' response is consistent. It was good to see the second best response was to (E) 'a magazine'.

8. Do you read all of the direct mail that comes to you?
Most do not read it all.

9. How would you design a breast cancer mailer to get attention?

SUMMARY
The easier a piece is to read, the better. Post card, Large print, (large enough to read without glasses) Bulleted information, Schedule of upcoming mammogram sites in area are positive suggestions offered by this group.

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10. Have you ever called an information line? Did you find if helpful? Why?

SUMMARY
Most found them highly annoying. It takes too much time.
You don't know if you're going to get the information you need.
However, if most knew what kind of information they would be getting and felt confident about, most would call.

C. COMMENTS
It is interesting that one of the group members had hand outs about self examination and 4 or 5 participants took them. Even the groups that we would expect to be highly educated about this topic are still looking for new information.

Positive news was preferred over negative. They wanted success stories, not horror stories.

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Summary of Comments on Focus Groups

This report summary is based on four focus groups conducted during March 1995 on the subject of breast cancer concerning the most appropriate methodology for direct mail to be most effective for hard to reach target audiences. The results are considered subjective in nature and lead to as many questions unanswered as answered. However certain trends were observed across socio-economic levels as well as some areas that were exclusive.

To have conclusive results, a larger sampling would be required. The data to follow should greatly enhance the ability to reach our four target audiences. Further analysis should be employed to gauge the results of the direct mailing and other mechanisms planned.

General Patterns Common to All Groups

1. A large number of participants had immediate family, relatives, and close friends get cancer. It has hit many participants close to home. This was true with all levels researched.

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2. To Avoid Fear Tactics - Show the positive; hope, prevention, case studies of survivors and this will enhance interest. Fear tactics will turn viewers away.

3. If insurance does not cover mammograms or treatments, few people would get mammograms or treatments. This seems to be true even among the more affluent participants.

4. Most people are fully aware that breast cancer is a major problem in older women, however little information is actually known about breast cancer, even in the more educated groups. There is confusion over what information is correct.

5. The more targeted the mailing is, the more likely it is that people will respond. i.e. Information regarding specific geographic areas. The local phone numbers on the mailing and the information contained will inevitably help enhance the results of this mailing.

6. Oversized, graphic, colorful piece (not necessarily full color), would get the most attention. This was an overwhelming response throughout all groups and had no exceptions.

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7. Information lines and copy in the direct mailer itself should be very short and to the point. This is critical to the success of the campaign. It is more important to get people into the health care system than it is to totally educate them with the mailer. Our immediate intention is to get them to call a number. Our secondary desire is for them to take action.

8. A free gift would be an incentive to call for many of the participants. However it was not a critical issue.

9. It seems easier to get women to take their children to get checkups than themselves. Mother and daughter teams seems like a good approach in some cases. We are not sure this is universal enough for our mailing since it does not apply to all targets.

10. The most concise wording possible is important. The less hard people have to work to get the information we need for them to grasp, the better the results.

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11. Information should be presented in a manner that brings it to the personal level. We must make the connection to the person reading it.

12. Potential Themes and Creative Platforms that came out of the groups:

"It Could Happen to You"

"Don't Gamble with Breast Cancer" (Lotto Ticket)

"Your Children Need You to Stay Around"

"Free or Reduced Cost Mammograms Available"

"Get a Check Up for Your Children" (This would hopefully lead them to get checkups for themselves)

Include celebrities such as Ann Jillian or Montel Williams

"Take Time for a Mammogram"

"How to Lower Your Risk of Breast Cancer"

Coupons (Cosmetics)

"Life Beyond Breast Cancer Diagnosis"

Case Studies - Success Stories

NOTE: The above two bold, italic themes are our highest potential options for this direct mailing.

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Individual Patterns

Lower-Middle

The reasons that many in these group don't get mammograms is that they are *unable to* or *think that they are unable to* afford a mammogram. Many do not have insurance, transportation, daycare, or a variety of other considerations that prevent them from getting a mammogram. The most important communication is that we *make them* aware of *the* availability of these free or reduced services.

Upper-Middle

Time is *as much a* consideration as anything for this group. They are busy with jobs and families *and often don't have time* to consider health care in general.

This groups does not need as much persuasion as some of the other groups. They seem to seek to know more about breast cancer and simply need a place to look for that information.

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Overview of Focus Group Series

For each focus group an excellent mix and quantity of participants were available. We were pleased at the level of knowledge and interest in the breast cancer subject--especially the women in the Baltimore shelter. Some women were extremely intelligent and gave us clear insights.

Due to time constraints, were not able to get all our questions discussed, however the questions were arranged in order of most importance first. Almost all areas explored and considered important to the success of this project were researched to a level of satisfaction that we had accurate results (even though we had a relatively low sampling).

We completed four potential directions of post cards as based on the four focus groups. At this stage we revisited one focus group (Baltimore YMCA shelter) and then met with a new one (YMCA-Glen Burnie). All four post cards got high enough marks to be somewhat effective. However after much discussion and prompting, we were able to narrow it down to one.

After much internal discussions and analysis, we decided to have half of the series (the message response series-non live)fold out with more information.

The respondent can open if they wish or simply only refer to the 'back' and 'front' of the post card for information.

Our actual mailing to the target audiences will gauge the changes required (if any) for the larger mailings.

EXHIBIT I:
SECOND FOCUS GROUP SERIES

Cancer Research Follow-up Focus Groups

Group A Project Independence-YWCA
Group-Total 18 women, 16 white (primarily young women)

Post Card A- Don't Gamble with Breast Cancer (roulette wheel)

Group Comment: Made strongest initial impact.

Individual Comments:

o 4-Toss Direct Mail

o 10-Noticed Free Gift (in small type)

o Like the way 'Breast Cancer' stands out in yellow (strong contrast).
  Consensus: Drawn to yellow-said good color.

o Busy inside of roulette wheel.

o Good message: 'Don't Gamble with Breast Cancer'

o Design peaked curiosity.

o Would see as reminder--to get a mammogram then throw it out.

Post Card B- Don't Gamble with Breast Cancer (lotto ticket)

Individual Comments:

o Breast Cancer lost in copy--emphasis on gambling with Lotto ticket.

o Consensus: Lotto ticket immediately draws eye to message.

QUESTION ASKED:

If you could get a lotto ticket, would you call?
>
> Yes-12
>
> No-6

Post Card C-Don't Gamble with Breast Cancer (dice)

Individual Comments (not much enthusiasm or interest in this post card):

o Breast Cancer stands out better than in Lotto ticket post card.

o I'm aware of breast cancer-don't gamble.

Post Card D (You Can Lower Your Risk of Breast Cancer)

Individual Comments:

o I would throw it away.

o I look at serious stuff like this.

o This would appeal to more people-health-oriented.

o Want information on how to lower your risk. It drives me to check further.

o Breast Cancer does not stand out-different color. Maybe reverse yellow and red.

o Free gift would prevent me from calling.

o I would call if you had a free gift.

Post Card E (Back) *Live Counselor*

Why Gamble-It's 90% curable-most of group said they knew the statistic and think it is a good heading.

Question Asked:

Pick the topic that **most** got your interest from the following (one only)

o Prevention	6
o Detection & Diagnosis	5
o Causes & Risk Factors	1
o Referral to Community Resources	0
o Free Publications mailed to You	1
o You Can Get The Answers	1

How many would actually pick up the telephone and call?

Total that said yes-8

o Prevention

o Detection & Diagnosis

o Referral to Community Resources

o Free Publications mailed to You

o You Can Get The Answers

What would cause you to call?

> o Free Assistance for Mammogram (16 out of 17)

Comments: o If the free gift was the mammogram, I would be very interested.

Post Card E (Back) *Automated System*

Comments: o It would better to listen to library messages than talk to a counselor.

> o If I was interested, I might go either way

> o I would not be interested

> o The information would be clearer talking to a counsellor.

> o I would prefer to use the library (2)

If you called, would you listen to all the messages?

> Yes-7

> No -11

First Choice of Post Card Fronts

> Design   A   3 (Don't Gamble-Roulette Wheel)

>   B   2 (Don't Gamble-Lotto Ticket)

>   C   3 (Don't Gamble-Dice)

>   D   9 (You Can Lower Your Risk)

Second Choice of Post Card Fronts (cannot choose your first choice again)

Design   A   2 (Don't Gamble-Roulette Wheel)

               B   0 (Don't Gamble-Lotto Ticket)

               C   7 (Don't Gamble-Dice)

               D   8 (You Can Lower Your Risk)

Group B YMCA-Downtown (mostly group that met initially)

Post Card A- Don't Gamble with Breast Cancer- (Roulette wheel)

> o Like it - very eyecatching

> o If gambling was bigger I would look at the back.

> o Makes you want more information.

> o It is good to link health and gambling together.

> o New approach !, makes you want to turn over to see
> more information.

Post Card B- Don't Gamble with Breast Cancer- (lotto ticket)

> o Design A is better.

> o Lotto ticket is misleading, it makes you think your going to
> win something.

Post Card C- Don't Gamble with Breast Cancer- (lotto ticket)

> o It is more colorful and attractive than design A.

> o I don't like the 'No Smoking' symbol.

Post Card D- (You can lower your risk of breast cancer)

> o I like it very much.

> o I can identify the medical symbol, I have seen it before.

> o The colors are bright and appealing.

> o It is a more serious design.

> o I think lower your risk is good.

o Breast Cancer should be bolder, different colors.

Post Card Back (Automated Service)

    o Two colors are not eyecatching enough.

    o Eliminate patterned background.

    o Should be the same colors as the front.

    o Why Gamble It's 90% Curable' should be bigger and bolder.

    o 24 hour service is good.

    o The amount of information on the card makes you want to learn more.

    o The topics are good.

Post Card Inside (Automated Service)

    o Save Lives - Positive message

    o I think it would better if graphic arrow goes down to bottom of page (2)

    o I think '3 easy steps' should be bigger

    o I think I would call step 2 first -help message

    o Continue message from front to back to inside.

    o Would you call?   yes 5

Post Card Back *-Live Counselor*

- o Says everything you need it to say

- o Big print draws attention to the information, more interesting to read

- o Free gift is good, but not critical

- o I would call

First Choice of Post Card Fronts

Design	A	7	(Don't Gamble-Roulette Wheel)
	B		(Don't Gamble-Lotto Ticket)
	C		(Don't Gamble-Dice)
	D		(You Can Lower Your Risk)

Second Choice of Post Card Fronts (cannot choose your first choice again)

Design	A		(Don't Gamble-Roulette Wheel)
	B		(Don't Gamble-Lotto Ticket)
	C		(Don't Gamble-Dice)
	D	7	(You Can Lower Your Risk)

Post Card Back *-Live Counselor*

          o Says everything you need it to say

          o Big print draws attention to the information, more interesting
            to read

          o Free gift is good, but not critical

          o I would call
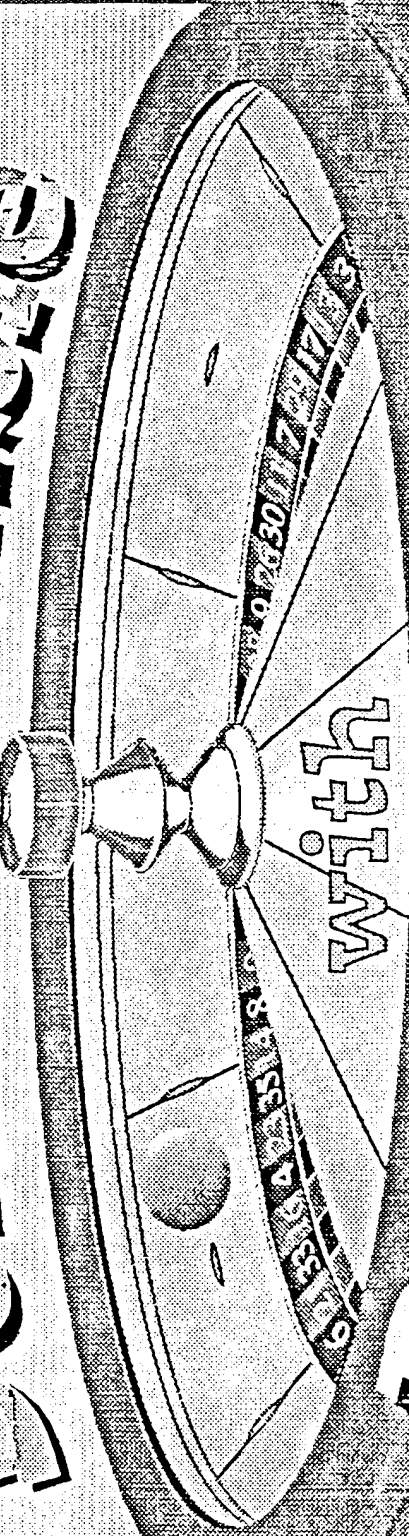
Don't Gamble with Breast Cancer

FREE GIFT AVAILABLE FOR CALLING
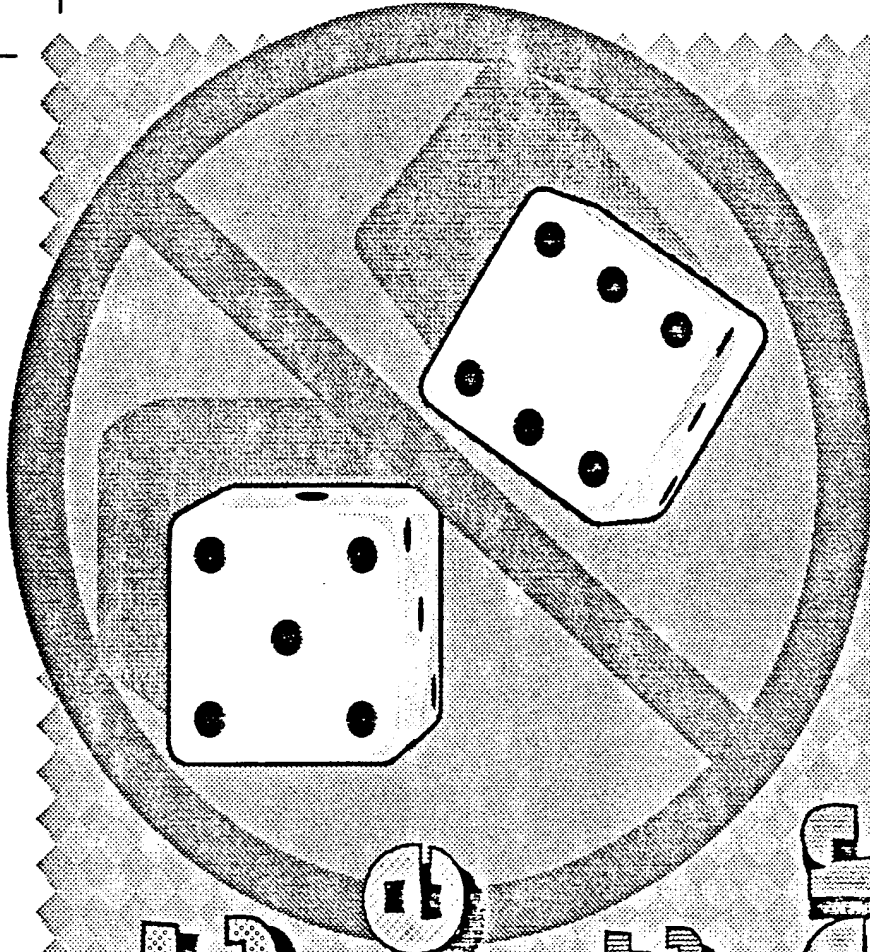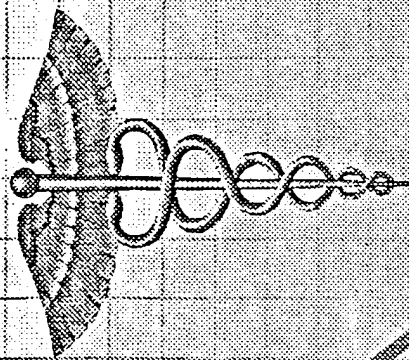
A

Cancer

with

Don't Gamble

FREE GIFT AVAILABLE FOR CALLING

LOTTO

LOTTERY

B

Don't Gamble with Breast Cancer

C

YOU CAN
LOWER?
RISK
YOUR
OF
Breast Cancer?

D

Why Gamble -- It's 90% Curable When Detected & Treated Early

Listen to valuable recorded information about breast cancer prevention, detection, treatment and support.

The Breast Health Information Program library contains information on the following topics:

- ◆ Breast Cancer: What You Need To Know
- ◆ Breast Cancer Risk Factors
- ◆ Breast Health
- ◆ Treatment Options
- ◆ Recovery/Follow-up Care

Available 24 hours, 7 days a week from any convenient telephone. This program ends August 31, 1995

☞ Open the postcard for a complete listing of the messages in the library and instructions for using this breast cancer information service.

This program is sponsored by TeleSonic in collaboration with a panel of cancer experts.

Breast Health Information Program: 1-800-XXX-XXXX

ANN DOE
123 Jamieson Drive
Annapolis, MD 21401
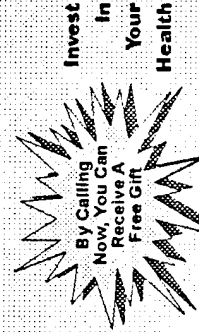
Invest
In
Your
Health

By Calling
Now, You Can
Receive A
Free Gift

AUTOMATED

Don't Gamble

with Breast Cancer

Why Gamble -- It's 90% Curable
When Detected & Treated Early

Questions About Breast Cancer?

Talk to a live, trained person to get valuable information, resources, and referrals. You can get the answers.

◆ Prevention
◆ Detection & Early Treatment
◆ Causes & Risk Factors
◆ Referral to Community Resources
◆ Free Publications Mailed to You
◆ Get Answers To Your Questions

All calls are handled individually and confidentially. Available Monday - Friday, 9:00 AM - 7:00 PM. This program ends August 31, 1995.

This program is sponsored by TeleSonic in collaboration with a panel of cancer experts.

Breast Health Information Program Call: 1-800-XXX-XXXX

Don't Gamble

with Breast Cancer

Why Gamble -- It's 90% Curable
When Detected & Treated Early

Listen to valuable recorded information about breast cancer prevention, detection, treatment and support.

The Breast Health Information Program library contains information on the following topics:

◆ Breast Cancer/What You Need To Know
◆ Breast Cancer Risk Factors
◆ Breast Health
◆ Treatment Options
◆ Recovery/Follow-up Care

Available 24 hours, 7 days a week from any convenient telephone. This program ends August 31, 1995.

☛ Open the program for a complete listing of the messages in the library and instructions for listing the library's breast information services.

This program is sponsored by TeleSonic in collaboration with a panel of cancer experts.

Breast Health Information Program: 1-800-XXX-XXXX

YOU CAN Lower Your Risk OF Breast Cancer

3 Easy Steps

To Access the Breast Health Information Library

Step 1
Step 2
Step 3

#	Title
1	What Is Breast Cancer?
2	Put Fear Aside-Breast Cancer Is Curable
3	Breast Cancer Myths
4	Every Breast Lump Or Pain Is Not Cancer
5	Breast Cancer And African American Woman
6	Men, You Can Get Breast Cancer Too
7	Are You At Risk For Getting Breast Cancer?
8	How To Lower Your Risk For Getting Breast Cancer
9	Breast Examination*
10	All About Mammograms*
11	Where Do I Get More Information About Breast Cancer
12	How Can Breast Cancer Be Treated?
13	There Is A Life After Breast Cancer
14	Community Bulletin Broad*
15	How Should I Support A Friend Or Relative With Breast Cancer

EXHIBIT J: AUTOMATED POSTCARD

YOU CAN Lower Your Risk of Breast Cancer
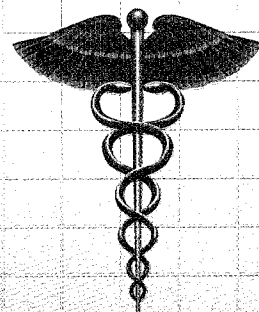
3 Easy Steps
To Access the Breast Health Information Library

A 24 Hour Information Service on Breast Cancer Prevention, Detection, and Treatment. You can listen to any message in the library at any time from any Touch-Tone Phone.

Step 1 Call
1-800-521-8937

Step 2 Press 2 to reach the message library
or
Press 1 or 3 for assistance.

Step 3 Press a number (1-15) to listen to that message.

Msg #	Message
1	*What Is Breast Cancer?*
2	*Put Fear Aside-Breast Cancer Is Curable.*
3	*Breast Cancer Myths*
4	*Every Breast Lump Or Pain Is Not Cancer.*
5	*Breast Cancer And African American Woman*
6	*Men, You Can Get Breast Cancer Too*
7	*Are You At Risk For Getting Breast Cancer?*
8	*How To Lower Your Risk For Getting Breast Cancer*
9	** Breast Examination*
10	** All About Mammograms*
11	*Where Do I Get More Information About Breast Cancer ?*
12	*How Can Breast Cancer Be Treated?*
13	*There Is A Life After Breast Cancer.*
14	** Community Bulletin Board*
15	*How Should I Support A Friend Or Relative With Breast Cancer?*

* Fax or mailed material available following this message. Example with message #10: "All About Mammograms" - List of Free or Low Cost Mammogram Services will be faxed or mailed to you.

EXHIBIT K: LIVE POSTCARD

EXHIBIT L:
EXPECTED RESPONSE RATES

MEMORANDUM

To: Army Health Project File

From: Leonard Blackshear

Re: Information - On - Demand Response Rates (Revised)

Date: November 21, 1994

Over the course of Army Health research, questions have come up about what kind of response is anticipated from promotional efforts.

There are some rule-of-thumb guidelines that we use for a typical application. However, actual campaigns are affected by many factors and therefore can vary by wide margins.

Assuming that a target, random population gets 10,000 brochures:

1)   (a)   Estimated calls to live persons

                        =   5% (500) calls in first month, and

                        =   7.5% (750) calls in the first 3 months

        (b)   Estimated calls to an automated audio information-on-demand system

                        =   7% (700) calls in the first month, and

                        =   10% (1,000) calls in three months

2)   <u>Automated System Callers</u>

        a)   Of 1,000 calls to the automated system, an estimated 10-15% (100-150, average 125 callers) will be callers transferred to live operator assistance before selecting any information.

        b)   Of the remaining 900 callers, an estimated 15-25% (150-250, average 200) will dial through to a live call taker after listening to 1 to 2 messages.

        c)   Of the 900 listeners, an estimated 25-35% of them (225-315, average 270) will be satisfied with the information received.

        d)   Of the 900 listeners, an estimated 20-30% (180-270, average 225) will

be partially satisfied with the information received.

3)   Ten percent of calls to messages will request hard copy information.

4)   Summary

(a)   Projected calls to <u>live call-takers</u> equal an estimated 750 calls for 10,000 unique promotional contact attempts (i.e. 10,000 different people). Each caller was either fully or partially satisfied with the information provided.

(b)   Projected calls to the automated system with live call taker support equals an estimated 1,000 calls for 10,000 unique promotional contact attempts. The equivalent fully and partially satisfied callers will, on average break out as follows:

- Immediate live operator assistance before information access	100-150
- Dial through to live call taker after listening to recorded message	150-250
- Recorded message adequate	225-315
- Recorded message partially adequate	180-270
Total Contacts	**655-985**

(c)   With over 655 to 985 system caller contacts with recorded or live information, an average 820 callers will result in getting adequate or partially adequate answers to questions.

The number of adequate contacts for the pre-recorded and live system should not be significantly greater than the all live system. The difference should, however, reveal the following benefits.

1)   The cost of providing pre-recorded and live information is lower than providing live only information. This is due to such factors as fewer people required for the same level of service (or service expansion without staff expansion), and shorter calls since socially required interpersonal signalling (such as "Good Morning, How may I help you") are not yet required of technology.

2)   Because of increased anonymity and other factors, response to the recorded information will penetrate further into informationally hard-to-reach communities.

3)   Information needs will not only be met faster, they will be met 24 hours a day, seven days a week without a requirement for additional shift of people, some of whom would become bored by the low demands on their time.

While the contact totals above are rule-of-thumb, they do represent random target population

responses. In a special case, such as contacting females with cancer information, the response could be lower. Conversely, a response may be higher than average. For example, retirement information might be sent only to people who just retired.

Responses from print and electronic media (radio and TV) may appear to be high but become quite low when divided into the total population contacted by that media. Also, multiple contacts to a specific population, such as spaced mailings, will cause the overall response to rise.

A "n" of 20,000 is proposed for Test 1 or census areas in excess of 5,000 for each stratified population (e.g. African American low SES, African American mid-upper SES, white low SES, white mid-upper SES). Related questions:

1. Within each census area of > 5,000, the focus will be on 5,000 homes, hence for some homes more or fewer females will be notified.

2. Census areas will be of different sizes, yet the random assignment of 5,000 pieces of literature can be counted to access the same number of homes.

3. To support random assignments, census areas should be as large as possible. Desired size is at least 3 times each mailing.

cc: Judy Cabral, Toni Shumate, Patsy Blackshear

EXHIBIT M:
SAMPLE SIZE DETERMINATION

Sample Size determination

P1 = .10
Power

	0.99	0.95	0.9	0.85	0.8

P2 = .075

ALPHA

	0.99	0.95	0.9	0.85	0.8
0.01	6215	4628	3879	3412	3063
0.02	5606	4106	3404	2967	2643
0.05	4769	3397	2762	2372	2084
0.1	4105	2842	2266	1915	1658

P1 = .05
Power

P2 = .0375

ALPHA

	0.99	0.95	0.9	0.85	0.8
0.01	13023	9696	8125	7145	6412
0.02	11747	8602	7128	6213	5532
0.05	9993	7115	5784	4966	4381
0.1	8600	5952	4743	4007	3468

P1 = .33
Power

P2 = .025

ALPHA

	0.99	0.95	0.9	0.85	0.8
0.01	21391	15922	13340	11730	10525
0.02	19293	14124	11701	10198	9079
0.05	16412	11681	9493	8148	7154
0.1	14122	9769	7783	6573	5687

P1 = .075
Power

P2 = .05

ALPHA

	0.99	0.95	0.9	0.85	0.8
0.01	4580	3417	2867	2525	2268
0.02	4134	3034	2518	2198	1960
0.05	3520	2513	2048	1761	1550
0.1	3032	2106	1683	1426	1237